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The Group of Respiratory Disorders known as "Blows," in Pigs.*

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The group of diseases known to pig breeders in Northern Ireland as "the Blows" is one which, in spite of its considerable economic importance, has been little studied.

"Blows" may be defined as a disease or diseases of swine in which the chief clinical symptoms are a marked heaving action of the flank muscles and a greatly increased rate of respiration. These easily-noted symptoms have given rise to other popular names such as "thumps," "pants," "heaves," and "coughs and blows."

Inquiries among pig breeders reveal the fact that "blows" have been recognised among swine for years, but that it is only within the last decade or so that they have become of such serious importance in Northern Ireland. This period coincides with the appearance of modern intensive pig farming.

These diseases are responsible for a heavy mortality among young pigs, but it is not possible, at present, to give an exact idea of the monetary loss sustained. Inquiries received by the Animal Diseases Division, Ministry of Agriculture, Northern Ireland, show that the losses are not confined to any one part of the six counties, and that the different breeds of pigs maintained in the province are susceptible. Similar troubles in rearing pigs are experienced in Great Britain and the United States of America, and papers dealing with an apparently similar problem have been published recently by McGowan[1] and L. P. Doyle[2] *et al.* These papers will be referred to later.

Various theories are current locally as to causation. These are summarised briefly as follows:—

(1) Worms are popularly considered to be a cause and, as they are commonly found in pigs, there appears to be some justification for this view. Leaflets issued by vendors of worm medicines no doubt play a part in fostering this idea.

(2) Constipation is urged by many as being the cause of "blows." Undoubtedly "blowing" pigs are very often constipated, and this would provide an easy explanation of how breeders have come to associate the two conditions.

(3) Lack of exercise and a highly nitrogenous diet are mentioned as likely causes.

(4) The germ theory, with the implied suggestion that the disease is infectious, has numerous adherents. The fact that successive lots of young pigs reared on certain farms develop the disease year after year, has been put forward as evidence in support of this view.

Unfortunately there is no direct evidence to support any of these views, excepting that regarding worms.

Baskett[3] records diminished losses where minerals have been fed, and suggests that dietary deficiency may play a part in producing the condition.

An investigation into these conditions was commenced by the writer in October, 1926. The work has been undertaken chiefly at the laboratories of the Animal Diseases Division, Ministry of Agriculture, Northern Ireland, and also at various convenient farms from which complaints regarding losses were received.

Sixty *post-mortem* examinations have been made of pigs which had died from "blows," while twenty-four live pigs showing typical symptoms have been killed and submitted to bacteriological examination.

As a result of these examinations, "blows" have been divided into two main types:—

(1) "Blows" of verminous origin, and

(2) "Blows" not of verminous orlgin.

(1) "Blows" of Verminous Origin.

Two species of worms are associated with this condition: (a) *Metastrongylus apri*—a lung worm, and (b) *Ascaris suis*—an intestinal worm.

Methods used in detecting the presence of worms:—Lung worms and ascarid larvæ: scrapings from the tracheal and bronchial mucous membrane were carefully examined for the presence of larvæ or worm eggs. Where ordinary microscopical examination failed to show larvæ or eggs, the trachea and bronchii were carefully washed with normal saline, one portion of the saline was centrifuged and the sediment examined, the other portion was submitted to the sugar flotation method, described by Sheather[4], for round worm eggs. The bronchii and bronchioles were opened and carefully examined for the presence of lung worms. Where these measures gave negative results, the lung tissue was sectioned and incubated in saline for twenty-four hours, strained through coarse mesh gauze and centrifuged; this sediment was then examined for larvæ and eggs.

Ascarids: The intestines of all cases were opened throughout their length and examined for ascarids, etc. In addition, a sample of fæces was submitted to the sugar flotation method[4] for worm eggs.

Out of eighty-four cases so examined, worms were found in fifteen cases—lung worms in eleven cases, intestinal worms in one case and, in three cases, both lung and intestinal worms were found.

(a) Lung Worms: These seem to be of much greater importance than intestinal worms and probably cause about 15 to 20 per cent. of "blows" (they were present fourteen times in the series of eighty-four cases examined).

The worm is a slender, white worm about one-half to two inches in length. It is found chiefly in the smaller air passages. Bundles of six or eight worms may be found together. It is the common lung worm of swine.

Life history: According to Zebrowski[5], the life history is as follows: The eggs contain active embryos when

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deposited and these hatch in the lungs. The young larvæ can be detected in scrapings from the trachea, the sinuses of the head, and in the nasal discharges (the writer has on several occasions detected eggs in the nasal discharges). It is to be presumed, however, that the larvæ pass out for the most part in the fæces. Under suitable environmental conditions, the larvæ grow actively for four weeks, after which time no growth is observed. Warmth and moisture are required to maintain growth. Damp, porous soils are most favourable. Infection is direct without the necessity of an intermediate host or a free-living generation.

Animals become infected by eating food material contaminated with the larvæ. It is probable that the worms reach the lungs by way of the blood stream, and there is a possibility of infection before birth. Young sucking pigs may obtain infection from the dirt carried in by the sow on her udder, feet, etc., and young pigs from four to five weeks old, which have never been outside their pens, have been found to be heavily infected with lung worms.

Clinical features: The general history in outbreaks of this type is that at first only a few pigs are noticed coughing, and no cause for alarm is felt by the farmer. As the premises become more heavily infected, the symptoms described below become more evident and progressive losses are experienced. Young pigs are most seriously affected. Symptoms usually appear about four to six weeks after birth, infection being obtained from the bedding or from dirt on the sow's udder, etc. Healthy pigs bought in as stores from eight to ten weeks old and allowed to graze on infected pasture usually show symptoms four to six weeks afterwards; on heavily infected ground, this period may be shorter. Spasms of a dry, husky cough are the first signs of trouble. Lightly-infected pigs may cough only when they are being fed or disturbed.

As the infection becomes heavier, the fits of coughing become more frequent and severe, and difficulty in respiration is noticed. A considerable rise in temperature is recorded; temperatures of 105° F. and 106° F. are commonly noted. The rate of respiration is increased—it may be doubled or trebled. The heartbeats show a proportionate increase in frequency. Constipation is not uncommon. If the case is neglected, symptoms of pneumonia appear, the animals lose condition, and are very "unthrifty" looking. The ears become discoloured and the skin develops a greyish, unhealthy pallor. Symptoms of "blows," *i.e.*, a marked heaving action of the flank muscles are now shown. At this stage, it will be noted that the harsh cough is a less-pronounced feature, perhaps due to the fact that large areas of lung tissue have become pneumonic. Death usually results in a few days from the onset of the "blowing" symptoms. If the animal recovers, it continues to remain "unthrifty" for some time.

Post-mortem examination: The chief lesion noted on *post-mortem* examination is an extensive bronchial pneumonia. On section, large areas of lung tissue will be found to be quite solid. On slitting open the bronchii, numerous lung worms will be seen, often lying in bundles of five or six. A muco-purulent discharge is frequently present in the bronchus. Generally the carcase is in poor condition.

Treatment for lung worms: The treatment recommended for lung worms is the injection of chloroform (2-3 c.c.) into the nostril of affected pigs at intervals of three or four days. A large measure of success has attended this method. Usually three doses are sufficient. The pigs require to be removed from the infected land to prevent reinfection.

(b) Intestinal Worms.

"Blows" or "thumps" may also be caused by the larvæ of the intestinal worm *Ascaris suis*.

Life history[5]: The adult worms deposit their eggs in the intestines, to be passed to the exterior with the fæces. After a variable period, a small worm develops in the egg and this, on ingestion, hatches out in the intestine, invades the blood stream and is carried to the lungs, through which it makes its way until it reaches the trachea, up which it travels, and is again swallowed to become mature in the intestine. This peculiar journey requires about ten days.

During the passage through the lungs, serious symptoms may be set up, especially if the infection is very heavy. In some cases a fatal pneumonia results. The symptoms noted include signs of respiratory distress, *viz.*, accelerated respirations and, in severe cases, "blows" or "thumps." The presence of the larvæ in the lung substance apparently renders it more susceptible to infection. (In eight cases, where *post-mortem* examinations were carried out for other reasons, heavy infestation with ascarids was noted, but inquiry did not reveal any noteworthy attack of respiratory trouble. No lung lesions were noticed. In two of these cases, several hundreds of ascarids were found.)

Treatment: Santonin has been used against round worms with satisfactory results. The dose varies from two grains for a small piglet of 15 lbs. weight to eight grains for a pig of 100 lbs. or over. The dose may be administered in the evening meal after twenty-four hours of fasting, and a purge of Epsom or Glauber salts given in solution on the morning following. The fasted hogs will drink this purge if diluted at the rate of one-half ounce of salts to each quart of warm milk or slop.

Preventive measures against lung worms and intestinal worms: Measures similar to the "McLean County System" have been adopted in certain cases with splendid results. These measures briefly are as follows: (1) Thorough cleansing and disinfection of the farrowing pen (boiling water should be used for the initial cleansing as it destroys worm eggs); (2) A few days before farrowing the sow must be carefully washed and scrubbed in a weak disinfectant solution, special attention being devoted to the udder and feet. The sow and her young must not be allowed out on infected ground or on ground grazed over by older pigs. Arrangements should be made to change the ground each year. Breeding from good, healthy sows is, of course, essential.

(2) Non-verminous Type of "Blows."

Clinical features of the disease: This is a much more serious condition. The usual history met with in cases of this kind is that the litter does well until it is about three or four weeks old. The owner notices nothing wrong, although, on careful examination, one or two of the pigs may be found to sneeze occasionally. (If a pig at this stage is killed and its lungs sectioned, a considerable

amount of frothy mucus will escape from the cut bronchii, and the lungs will appear œdematous.) The pigs are pale in colour, fat and stocky in type, and disinclined to exercise. Generally no warning symptoms are noted until one day the owner observes one or two of the piglets " blowing "—that is, displaying a heaving or in-and-out movement of the flank muscles, due to the rapid, jerky nature of the respiration. The skin assumes a greyish pallor and in a few days the pig dies. Occasionally an affected pig may die suddenly without showing any respiratory symptoms. Very often what appears to be the best pig in the litter is the first to be affected.

Mortality may range from 20 per cent. up to 70 per cent. or more. Constipation is commonly present and many breeders consider this factor as a possible cause.

This is essentially a disease of young pigs ; the common age of attack varies between three and six weeks old. Cases, however, have been observed by the writer in young pigs as early as the tenth day of life, and in pigs up to eight and ten weeks old. Occasionally cases of pneumonia with marked " blowing " symptoms are met with from time to time in older pigs, but probably these are either survivors from an earlier attack, which have relapsed, or are simple cases of pneumonia occasioned by exposure, or resulting from septic invasion elsewhere in the body (*e.g.*, in metritis).

Distinction from parasitic "blows": The symptoms noted for this non-parasitic type of " blows " are somewhat similar to those noted in connection with the lung-worm type. The following points may prove helpful in distinguishing these types. The non-parasitic type attacks younger pigs as a rule. It appears commonly among pigs which have never been outside their pens, although these pens may have been carefully and regularly cleaned out. Parasitic " blows " does not usually appear in such circumstances. The possibility of the sow carrying worm eggs around on her udder should not be overlooked. In a case where this has occurred, it is not uncommon to find a number of older pigs to be affected with the typical, husky cough associated with lung worm, and which have had access to the same pasture as the sow.

Coughing is not a pronounced feature of this non-parasitic type of " blows." Young litters may be observed to become affected without ever having been heard to cough. It should be noted, however, that pigs which have been affected for some time, or are recovering from the disease, have usually a short, sharp, spasmodic cough. This cough is not so pronounced as the harsh, husky cough which is such a feature of lung-worm " blows."

A rise in temperature is not a feature of non-parasitic " blows." A subnormal temperature is often noted. Temperatures recorded vary from 100° to 103·6° F. Cases in which acute bacterial invasion of the lungs has occurred may display a marked rise in temperature (105° to 106° F.). Constipation is commonly present in both types of " blows."

Pathology : The following description is based upon a study of eighty-four cases.

Gross lesions : It was not uncommon to find the carcase in good condition—fat, but very pale in colour. However, this was by no means a constant feature, as emaciated carcases were also met with frequently.

Pneumonia : Evidence of a chronic, catarrhal pneumonia was present in 88 per cent. of the cases. In the majority of these cases, the pneumonic areas were of considerable extent, involving chiefly the apical and dependent lobes of the lungs. The consolidated lung areas were somewhat like lymphatic gland tissue in appearance and consistency. In a small number of cases, the pneumonic area formed a narrow fringe along the free border of the lung. A feature of the condition was the amount of frothy fluid present in the air passages. In some cases the lungs appeared almost waterlogged and œdematous.

Pleurisy, with adhesions, was present in 48 per cent. of the cases examined. A considerable number of these cases showed a quantity of clear, straw-tinted fluid in the chest cavity.

Heart and Pericardium : In 44 per cent. of cases the pericardial sac contained a large quantity of clear, straw-coloured fluid ; as much as 40 c.c. of this fluid were measured. Marked adhesions between the heart and pericardium were present in 12 per cent. of the cases, while in about 70 per cent. the heart was enlarged and dilated—in some cases immensely dilated.

In 16 per cent. the abdominal viscera were " matted " together with adhesions, and in 40 per cent. a large amount of peritoneal effusion, with flakes of fibrinous material floating in it, was present. The fibrinous material was often deposited on the surface of the liver. Generally, however, a certain amount of peritoneal effusion was noticed. The liver was very considerably enlarged in over 50 per cent. of cases, and, in 30 per cent., on naked-eye examination, it appeared to be affected with passive, venous congestion, resembling a typical " nutmeg liver." This enlargement of the liver, though not to such a marked degree, was a common feature in the remaining cases. The liver on section generally presented a mottled or marled appearance.

Constipation was present in 68 per cent. Diarrhœa was observed in 8 per cent.

Blood : It was observed by the writer that the blood from affected pigs which were being killed for purposes of *post-mortem* examination, was very " watery " in appearance. This fact instituted a series of blood examinations which will be referred to at a later stage in this paper.

Microscopical examination of liver and lung lesions : Microscopical examination of liver sections in advanced cases shows a varying degree of necrosis of the liver cells around the central vein of the lobule, with a marked infiltration of red blood cells in this area, and extending between the remaining healthy liver cells. The destroyed liver cells show evidence of extensive fat deposition. Often the area surrounding the central vein is replaced completely by red blood cells. As one proceeds towards the margin of the lobule, the liver cells show varying degrees of necrosis with deposition of fat globules. In very advanced cases, the healthy liver tissue is represented by a ring of cells around the margin of the lobule. Varying gradations of this condition are found, from necrosis of a few cells around the central vein with no noticeable red-cell infiltration, to almost entire destruction of the lobule with escape of blood into the intercapillary spaces formerly occupied by the liver cells. Deposition of fat accompanies the death of the liver cell.

The modern explanation of this necrosis of the liver cells, accompanied by escape of erythrocytes, is that it is

not due to increased pressure of the venous blood in the capillaries, which is said to be felt with especial force in the liver, because it is near the heart, but rather that it is due to the fact that the sensitive liver cells are badly nourished by the impeded, venous stream, and that oxygenation is especially interfered with, so that those cells which receive the blood stream last suffer most severely and, in time, disappear, leaving a space which becomes filled with blood.

This explanation would seem to be in accordance with the facts of this case. The extensive dilatation of the heart, accompanied by the large amount of pericardial effusion, would probably lead to a considerable degree of venous congestion in the liver, and the blood being already deprived of some of its oxygenating powers through anæmia, would be affected still further by this slowing of the circulation.

Microscopical examination of lung lesions: In cases of long standing, all traces of the alveoli had disappeared, the area under examination presenting masses of leucocytes with an occasional red blood corpuscle. Masses of lymphocytes were noted, sometimes arranged in dense clusters. In less advanced cases, the outlines of the alveoli could still be made out, but their spaces were crowded with leucocytes. This was most marked around the small bronchii. Fibroblast cells were of common occurrence throughout the lesions, but no marked degree of fibrosis was observed.

Bacteriological examination.

For the purpose of bacteriological examination, twenty-four affected pigs were killed and examined at once.

The lungs, heart-blood, pericardial and pleuritic fluids, liver, spleen and lymph glands were submitted to direct microscopical and cultural examination.

Technique: The carcase was fixed on its back on an operating table; the skin over the thorax and abdomen was cleaned with spirit, dried and seared along the middle line. The skin was then reflected with sterile instruments. The thoracic cavity was opened into by removal of the sternum and portions of the ribs, thus exposing the lungs and heart. Cultures from the organs were made *in situ*. The area of lung to be examined was lightly seared and the point of a sterile glass pipette introduced into the lung substance, and a quantity of tissue fluid aspirated into the pipette. This was sown on the surface of blood agar slopes and into ordinary nutrient broth tubes. Pneumonic areas and also apparently healthy areas of lung tissue were examined. Cultures from the heart blood, pleuritic and pericardial fluids, spleen, liver and lymph glands were prepared similarly. Duplicate cultures were prepared, one set for ærobic, the other set for anærobic incubation: In a a number of cases (six) small portions of liver tissue were removed with careful aseptic precautions, added to broth tubes and incubated at 37·5°C. Smears from the various organs and fluids mentioned were prepared and stained at the same time. The methods of Gram and Leishman were used.

Results. In seven cases (29 per cent.), no organisms were recognised on microscopical examination, and all cultures remained sterile (all negative cultures were incubated for seven days). In the remaining cases, no organisms were found in any organs, excepting the lungs. Streptococci were recovered from the lungs in pure culture in four cases (16 per cent.). In one case this organism was found, together with *B. pyogenes* and *B. suisepticus*, and in one case with *B. suisepticus* alone.

An unidentified, slender, filamentous, gram-negative bacillus was present in pure culture in five cases (21 per cent.), with streptococci in two cases, and in one case with a gram-positive diplococcus. (Cultures of this gram-negative bacillus were only obtained on blood agar. Growth appeared first in water of condensation, and after two days incubation as a very delicate sheen on the surface of the blood agar. Individual colonies were small, translucent and circular in outline. Cultures of this organism were non-pathogenic for pigs and rabbits, on subcutaneous, intravenous, and oral administration.)

B. suisepticus was found in pure culture in two pneumonic lungs.

B. pyogenes was found in one case associated with a gram-positive diplococcus.

It may also be recorded here that the lungs of six healthy pigs were submitted to bacteriological examination, using exactly similar technique and that, in three cases, no organisms were found, while streptococci were found in the remaining three.

Remarks on results of bacteriological examination: These findings do not furnish much information regarding this condition from a bacteriological standpoint. They serve to show, however—

(1) That no particular organism is constantly present in the lungs of pigs affected with "blows."

(2) That in a number of cases, seven out of twenty-four, no organisms were present.

(3) That one or more types of organisms may be present in pneumonic lung; and

(4) That examination of the lungs of a number of healthy pigs (six) gave results which agree closely with those obtained on bacteriological examination of the lungs of pigs affected with "blows."

The condition has no relation to swine fever, and in no case examined has swine fever been present, complicating the "blows." This fact has been established by inoculation and in-contact experiments. Further, "blows" should not be confused with the so-called "swine plague." "Swine plague" is reputed to be caused by an organism of the Pasteurella type, *B. suisepticus*. This organism may be found to be present in the lungs of normal pigs. It is now generally believed to produce its harmful effects only when the body resistance is lowered by some debilitating condition. In this connection, it has been largely associated with swine fever.

EXPERIMENTS.

The following experiments were carried out to determine if this disease were infectious. Unless where otherwise stated, the experimental animals were kept under observation for a period of three months.

No. 1. A pig, 10 weeks old, was inoculated with 10 c.c. of citrated blood obtained from a typical case of "blows."

Result: The pig remained healthy.

No. 2. A pig, aged six weeks, was fed portion of a pneumonic lung minced in milk. The feeding was repeated

three days later with portions of lung from a second case of "blows."

Result: The pig remained healthy.

No. 3. The lungs from three cases were minced and extracted with normal saline and filtered through a Berkfeldt filter. Portion of the filtrate was inoculated subcutaneously into a pig aged six weeks.

Result: The pig remained healthy.

No. 4. Portion of the filtrate prepared in No. 3 experiment was inoculated intravenously into a pig six weeks old.

Result: The pig remained healthy.

No. 5. A further portion of the filtrate prepared in No. 3 experiment was fed to a pig aged six weeks.

Result: The pig remained healthy.

No. 6. 1.25 c.c of twenty-four hour broth culture of a streptococcus isolated from pneumonic lungs was injected subcutaneously into a small pig twelve days old.

Result: The pig remained healthy and no evidence of "blows" was obtained at *post-mortem* examination.

No. 7. The nasal chambers and pharyngeal region of a pig twelve days old were sprayed with 5 c.c. of a twenty-four hour both culture of a streptococcus recovered from the lungs of an affected pig.

Result: The pig remained healthy, and no evidence of "blows" was obtained at *post-mortem* examination.

No. 8. The mucus from the bronchioles and trachea of a case of "blows," together with a saline extract of pneumonic lung was sprayed over the nasal chambers and pharyngeal region of a pig thirteen days old.

Result: The pig remained healthy and no evidence of "blows" was obtained at *post-mortem* examination.

No. 9. A pig affected with "blows" was isolated in company with a healthy pig of similar age (5—6 weeks old). The two were kept together for three weeks and fed from the same trough; the "blowing" pig was then destroyed for *post-mortem* examination.

Result: The experimental pig remained healthy and no evidence of "blows" was found at *post-mortem* examination.

No. 10. A pig, eight weeks old, was inoculated intravenously with 1·5 c.c. emulsion in normal saline of the unidentified, gram-negative bacillus previously referred to under the heading "Bacteriological examination." The emulsion was prepared by washing off the growth obtained on four blood agar slopes after four days' incubation.

Result: The pig remained healthy and was destroyed two months later for purposes of *post-mortem* examination. No evidence of "blows" was present. Microscopical and cultural examination failed to detect the gram-negative bacillus in the lungs or other organs.

No. 11. A pig, twenty-four days old, was inoculated subcutaneously with an emulsion of the gram-negative bacillus used in experiment 10, and prepared in a similar manner.

Result: The pig remained healthy and was destroyed ten weeks later. *Post-mortem* examination did not show evidence of "blows." Bacteriological examination of the lungs, etc., gave negative results.

No. 12. An emulsion of the organism used in experiments 10 and 11, and prepared in a similar manner was sprayed over the nasal chambers and pharyngeal region of a pig twenty-four days old.

Result: The pig remained healthy. *Post-mortem* examination gave negative results as in experiment 11.

No. 13. A pig, twenty-four days old, was injected subcutaneously with an emulsion of a gram-positive diplococcus in normal saline, isolated from pneumonic lungs. The emulsion was prepared by washing off the growth obtained on a blood agar slant after twenty-four hours incubation.

Result: The pig remained healthy. *Post-mortem* examination gave negative results as in previous experiments.

No. 14. A portion of pneumonic lung, obtained from a case of "blows," was ground up in normal saline and filtered through fine gauze; 5 c.c. of the filtrate was inoculated subcutaneously into the inner side of the thigh of a pig aged thirteen days. Smears prepared from the lung substance had demonstrated the presence of a gram-positive diplococcus and a gram-positive bacillus which, on cultivation, was found to be *B. pyogenes*. Following inoculation, a small local swelling resulted with enlargement of the inguinal lymphatic glands. Abscess formation followed at the site of inoculation. No rise of temperature was noted at any time following the inoculation. The pig did not thrive or feed so well as the control pig. Six days after inoculation, both the control and experimental pigs experienced an attack of diarrhœa; this disappeared with a change in the diet. The experimental pig became pale and anæmic looking. It was destroyed thirty-one days after the inoculation. At *post-mortem* examination, the inguinal lymphatic glands were found to be converted into small bags of pus, cream-like in appearance and consistency. Cultural examination resulted in a pure culture of *B. pyogenes*. A blood count carried out before *post-mortem* examination showed a red-cell count of 2,500,000 per cu. mm., and a hæmoglobin estimation of less than 50 per cent. General *post-mortem* showed very slight consolidation of the apices of the anterior lobes of the lungs. These lesions were scarcely noticeable. A clear, serous effusion was present in the pericardial sac. The liver was enlarged and showed evidence of passive, venous congestion. Cultural examination of the lungs, heart blood, liver and spleen gave negative results.

The *post-mortem* findings are very suggestive of "blows." The writer, however, did not feel justified in assuming that the inoculation had set up the condition as, apparently, its effects had been confined to, and localised in, the inguinal lymphatic glands.

The condition was attributed to the fact that the pig was kept isolated in a large rabbit hutch placed in a loose box into which insufficient light penetrated. The fact that the pig was deprived of the sow's milk and artificially fed may also have played a part in producing the anæmia. The control pig, which was allowed the full range of a loose box, showed a hæmoglobin estimation of less than 60 per cent., and a red-blood cell count of slightly less than 4,000,000 per cu. mm. It also appeared pale and slightly anæmic-looking. Other pigs belonging to the litter from which these pigs were taken, and which were allowed out with the sow each dry day for a short period, showed hæmoglobin estimations averaging 80 to 90 per cent., and

red-blood cell counts approximating 5,500,000 to 6,000,000 per cu. mm. The control pig was restored to the litter and six weeks later its red-blood cell counts and hæmoglobin estimations were found to be normal (R.B.C. 5,500,000 per cu. mm., and hæmoglobin 85 per cent.). It is probable that the anæmic state resulted from the conditions under which the pig was kept and fed, especially as the control pig showed similar evidence of anæmia, though to a lesser extent. It is also interesting to note that this tendency to anæmia disappeared when the control pig was restored to the rest of the litter.

Conclusions : The experiments described, while not perhaps sufficiently numerous to warrant definite conclusions, nevertheless indicate :—

(1) That this form of "blows" is non-infectious in origin ;

(2) That organisms cultivated during the course of bacteriological examination have no etiological significance ;

(3) That a filterable virus is not present.

Blood examination. As mentioned previously, it was observed that the blood from some of the pigs which were killed for *post-mortem* examination was very "watery" in appearance. This fact led the writer to adopt as a routine procedure a system of red-cell counts and hæmoglobin estimations of blood of all pigs so slaughtered.

The blood counts were carried out with a Thoma's hæmacytometer, and the hæmoglobin estimations were made with Haldane's modification of Gower's hæmoglobinometer. Hæmoglobin estimations were also made using the filtering-paper method of Tallquiste and the readings were found to agree very closely with those obtained on the hæmoglobinometer. All blood counts were repeated twice. Blood films were also prepared, stained and examined.

The blood of normal pigs of about five to six weeks old estimated on a hæmoglobinometer standardised for human blood shows an average reading of about 80 per cent. Red-blood cell counts of normal pigs of this age show an average of 5,000,000 to 6,000,000 per cu. mm.

The blood of twenty pigs affected with "blows" has been examined.

Results : In nine cases, an average red-cell count of about 2,000,000 per cu. mm. was encountered. In one case, this has fallen to 1,500,000 per cu. m.m. In these nine cases, the hæmoglobin estimation varied from slightly less than 20 per cent. to 30 per cent., with an average reading of 23 per cent. Six pigs showed an average reading of about 3,000,000 red-blood cells per cu. mm., and a hæmoglobin estimation varying from 30 per cent. to 35 per cent.

The figures obtained in these cases indicate the existence of a very profound anæmia. Microscopical examination of blood films prepared from these cases confirmed this finding. It was noted that the red cells did not stain well with eosin.

The most characteristic feature was the marked degree of anisocytosis present. Both microcytes and macrocytes were present, the former being very numerous. Poikilocytosis was also noted. Occasionally varying degrees of polychromasia were present. Normoblasts and macronormoblasts were seen. "Shadow" cells were common.

A number of pigs which had been affected with "blows" for some time and which were recovering were also submitted to examination with the following results :—

No. of Pig.	Red Blood Cell Count.	Hæmoglobin Estimation.
1	4,000,000	45 per cent.
2	6,687,000	86 ,,
3	6,264,000	80 ,,
4	4,960,000	—
5	3,792,000	40 ,,

These results are not indicative of anæmia. It is known, however, that in treated pigs[6] which are recovering, the red-blood cells and hæmoglobin content quickly return to normal proportions. *Post-mortem* examination of these five pigs showed an advanced degree of pneumonia with enlargement of the heart and liver, lesions in themselves sufficient to account for the continuation of the "blowing" symptoms. It may also be noted that none of these pigs was under five weeks in age, the average age being nine weeks ; whereas the pigs in which examination of the blood showed a pronounced anæmia were invariably under five weeks in age.

It was concluded that these five pigs had probably been affected with anæmia, and had recovered, or were recovering from this condition, and that the lesions found at *post-mortem* examination were secondary to the anæmia, and were sufficient to produce the "blowing" symptoms recognised.

In general, the results indicate the existence of a profound anæmia. This finding is in agreement with that of McGowan[1], L. P. Doyle[2] *et al.*, who have investigated diseases of young pigs which appear to be closely related to, if not similar in nature to, "blows" in Northern Ireland. The symptoms described by McGowan[1], together with his *post-mortem* findings, are almost identical with those noted in connection with "blows" in Northern Ireland. McGowan emphasises a tendency to diarrhœa ; in Northern Ireland, the tendency appears to be towards constipation.

In concluding that anæmia is the primary cause of "blows," it may be asked "what is the cause of the other *post-mortem* lesions described ?" There seems little doubt that these may be attributed to the œdematous effusions which have taken place, and which are an early and pronounced feature of the disease. These effusions induce a chronic, inflammatory process, resulting in the lesions found. The fact that no rise in temperature is noted—indeed, the temperature is often subnormal—indicates the non-infective nature of the condition. It has been observed by the writer that in very early cases few lesions are noted beyond pericardial, pleural and peritoneal effusions. The lungs in these cases also exhibit an œdematous effusion in their dependent portion, in some cases in such quantity that the lungs appear to be "water-logged." In older cases, the chronic pneumonia and the pleuritic, pericardial and peritoneal adhesions found, make their appearance. These are accompanied by great enlargement and dilatation of the heart. The liver, too,

enlarges and shows all the evidence of passive, venous congestion. The enormously enlarged heart presses the lungs back into the costo-vertebral angle, and no doubt favours the advance of the pneumonic condition.

Treatment and Prevention.

Treatment is not satisfactory unless the cases are encountered in the very early stages. The primary anæmia yields to treatment, but the secondary lesions which have developed prove a stumbling block to any system of treatment and, though the pig may have recovered from the anæmia, the lesions produced may lead to a fatal termination. "Recovered" pigs are often affected with a chronic cough, and may still exhibit "blowing" symptoms, especially if disturbed. Affected pigs often remain stunted, "unthrifty" and liable to sudden death.

McGowan[7] recommends ferric oxide as a curative agent, but points out that "many of these animals, especially if they have been badly affected before treatment is commenced, never do well."

The same author[7] also states "that the disease may be prevented by the administration of ferric oxide in the food given to the sow. This acts, not by increasing the amount of iron in the sow's milk, but by affording the young pigs a ready source of iron-rich food, which they partake of early in life, first in play, afterwards in earnest." While milk is considered to be the ideal food for young animals, it may be mentioned that severe anæmia has been produced by feeding young animals for long period on a purely milk diet[8].

American investigators, *viz.*, L. P. Doyle *et al*[9], question the good effects of the feeding of iron salts and in a paper on this subject state definitely that the pigs require some other factor. In their summary they state that "the addition of iron lactate to the ration did not prevent anæmia in pigs kept under inside conditions. There appears to be some factor in outside conditions which tends to prevent anæmia." They also mention that "the occurrence of anæmia did not appear to be influenced appreciably by vitamins supplied in cod liver oil, yeast and orange juice."

Hart[10] is of the opinion that the presence of a trace of copper is absolutely necessary as a supplement to iron in hæmoglobin building. This, of course, may explain the failure of iron salts to check anæmia, experienced by Doyle *et al*. Hart, in referring to McGowan's successful results, states: "I venture to say that the iron oxide contained traces of copper which made the combination successful."

It is of interest to note that "blows" in Northern Ireland appear most commonly in the winter time, in the dark, gloomy months of the year, when there is little sunshine, and that the disease seldom appears where pigs have free access to pasture and "open-air" conditions. Baskett[3] records good results following the feeding of mineral supplements to the sow before and after farrowing,and states that the resulting progeny were not so liable to "blows." The writer has, however, seen "blows" in numerous instances where minerals were being fed to the sow. Unfortunately, the writer has been unable, up to the present, to carry out critical experiments to determine the exact preventative factor, but can record good results from the following measures: (1) The provision of good airy, well-lighted farrowing pens into which daylight or sunlight can penetrate without first passing through glass windows; (2) the provision of a few ounces of ferric oxide in a small feeding trough; (3) feeding mineral supplements to the sow; (4) allowing the sow out on clean pasture daily and, when the weather is suitable, permitting the young pigs to follow her.

The best results in treatment obtained by the writer followed the use of potassium iodide in daily doses of 10 grains, and the provision of a few ounces of iron oxide in a small trough accessible to the young pigs. The sow's udder was also occasionally sprinkled with this agent. Cod liver oil was given in daily doses of one teaspoonful. Exposure to direct daylight or sunlight was insisted upon, whenever practicable.

It is hoped shortly to test the value of liver extract as a curative agent.

Conclusions.

Apart from the disease produced by worms, the condition known as "blows" in Northern Ireland is neither infectious nor contagious. It bears no relation to swine fever or swine plague. Available evidence points to the view that the condition is primarily due to anæmia, and that the lesions found on *post-mortem* examination are sequelæ, arising mainly from the chronic, inflammatory condition set up by the dropsical effusions which are an early and prominent feature of the disease.

The cause of the anæmia is obscure; suggested causes are: (1) Lack of exposure to sunlight or daylight; (2) iron deficiency in the diet, and (3) vitamin deficiency.

Bibliography.

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3 Baskett, R. G., *Journal of Ministry of Agriculture, Northern Ireland*, 1927, Vol. I., p. 104.

4 Sheather, A. L., *Journal of Comparative Pathology and Therapeutics*, 1923, Vol. XXXVI, No. 2, p. 71.

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8 McCollum, Benedict and Mendel, cited in *Lancet*, Vol. CCXIV, No. 5461, April 28th, 1928, p. 863.

9 Doyle, L. P., Mathews, F. P., and Whiting, R. A., *Journal of the American Veterinary Medical Association*, Vol. LXXII., p. 510.

10 Hart, E. B., "Iron in Nutrition," *Journal of the American Veterinary Medical Association*, Vol. LXXIV., March, 1927, p. 679.

Army Veterinary Service.

London Gazette. War Office. Regular Army. Reserve of Officers.

Nov. 8—The follg. having attained the age limit of liability to recall, cease to belong to the Res. of Off.:—Lt.-Col. A. S. Head, C.M.G. (Oct. 24); Maj. E. C. Russell (Oct. 20).

The Veterinary Record.

16th November, 1929.

DISEASES OF THE PIG.

In the Annual Report of proceedings under the Diseases of Animals Acts for 1928, it is stated that, out of a total number of 9,958 reported outbreaks of swine fever inquired into during the year, only 14.8 per cent. were confirmed after veterinary examination on the premises and at the Ministry's veterinary laboratory. These figures show that, apart from the ravages from swine fever, the losses of pigs from other causes are very considerable. It is recognised that many stockowners are quite ignorant of diseases of pigs, and freely report as suspected cases of swine fever diseases and conditions in which there is actually no suspicion of that disease. Prompt reporting of suspicions of a scheduled disease is necessary for its effective control, but it is deplorable that pig-keepers do not consult veterinary surgeons more freely. Members of the profession can offer advice and prescribe methods of treatment for many diseases of pigs by which the stockowner would benefit and the proprietary medicine vendor be the poorer.

While many stockowners are ignorant, and even superstitious, in relation to animal diseases and ill advised in not seeking the aid of veterinary surgeons, it is to be feared that many members of the profession have ignored the possibilities of dealing with diseases of the pig. It has been represented to us that many practitioners have refused, even when requested by their clients, to treat pigs with serum or vaccine for swine erysipelas and with anti swine fever serum for swine fever, although these protective inoculations by general agreement are of proved value in suitable cases.

While we are in possession of the knowledge of successful methods of prevention and treatment for many diseases, we realise that there are many gaps in our knowledge and that many important diseases still await the serious consideration and attention of the pathologist, helminthologist and clinician, and a section devoted entirely to the investigation of diseases of the pig and to the dissemination of information might with very great advantage be installed at one of our research institutes. We hope that the large section of the community, both inside and outside agriculture, whose material interests are linked with the health of our livestock will ensure that the provision for research in diseases of animals, so well begun, will not be allowed to languish through lack of adequate provision of funds.

Animal Diseases Research Association.

APPOINTMENT OF DIRECTOR OF RESEARCH.

It will be within the recollection of our readers that in our issue of October 19th, we published the letter addressed by the Association to the President of the Directors of the Animal Diseases Research Association, relative to the appointment of a Director of Research, together with Mr. Falconer L. Wallace's reply thereto.

We reproduce below subsequent correspondence which has passed between the Association and Mr. Wallace in connection with this matter.

NATIONAL VETERINARY MEDICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

10 Gray's Inn Square,
London, W.C.1.
8th October, 1929.

Falconer L. Wallace, Esq.,
of Candacraig and Balcairn,
Strathdon,
Aberdeenshire.

Dear Sir,

APPOINTMENT OF DIRECTOR OF RESEARCH
ANIMAL DISEASES RESEARCH ASSOCIATION.

I placed your letter of September 17th before the Council of this Association at a meeting held in London on Tuesday, October 1st, when the whole subject was discussed carefully and at length.

I am instructed to say that before my letter of September 14th was drafted the Council had before it the Minutes of a meeting of the Directors of the A.D.R.A., held at Moredun Institute on July 4th, 1929, and also the Report by the Research Committee on Scheme of Research in Animal Diseases (Ref. R.O. 852. 25 : 30. 7. 29). In the latter document it found much to commend, but from a careful study of both it appeared clear that the proposal to appoint Professor T. J. Mackie, M.D., D.P.H., as Director of Research in addition to his University duties had by no means been abandoned.

The Council gladly welcomes voluntary assistance and advice from members of the medical profession. It does, however, strenuously oppose any suggestion that a member of the medical profession should be invited to control or direct work which can only be properly performed by one having veterinary qualifications.

For the reasons stated in my previous letter the Council asks that you will take such steps as you can to ensure that a veterinary surgeon, experienced in research into animal diseases, is appointed as Director of the Moredun Institute.

Yours faithfully,
F. KNIGHT,
General Secretary.

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Candacraig,
Strathdon,
Aberdeenshire.
9th October, 1929.

F. Knight, Esq.,
General Secretary,
National Veterinary Medical Association of
Great Britain and Ireland,
10 Gray's Inn Square,
London, W.C.1.

Dear Sir,

APPOINTMENT OF DIRECTOR OF RESEARCH
ANIMAL DISEASES RESEARCH ASSOCIATION.

I am obliged by your letter of the 8th October. I do not know what is the document that your Council got hold

of and which they think is a report by the Research Committee on Scheme of Research in Animal Diseases, for the report of the Research Committee (the recommendation of the Research Committee) has not yet been presented to the Directors. I fancy that what your Council have got hold of is an incomplete and preliminary sketch of a report which some of us had been working out and which I sent to Dr. Whitehouse in the course of correspondence to give him some sort of idea of what was in contemplation. The sketch which I sent him, however, has been amended and it was not thoroughly worked out. In consequence of the Resolution passed by your Association it may need further amendment before it is presented to the Directors.

At the meeting of the Directors which was intended to be a strictly private one I unfortunately made use of the expression "Director of Research" and I expressed the personal view that there might not be at the moment *available* a veterinarian with suitable qualifications to fill the post; and I expressed the personal opinion that in order to rope in various voluntary workers, largely specialists, and to collate their work, it might be necessary to have a medical man in the meantime behind all the research work, to hold the different threads of the various detailed branches of research work in his hands.

Since that meeting of Directors we have got a good deal further in our deliberations and have evolved what I believe will be found to be a very fine scheme—but we have not completely worked it out yet. I may say that as one of our objects is to increase the facilities for the training of veterinary workers in the higher branches of research, and the establishment of scholarships, I consider it of great importance to interest the University in the welfare of the A.D.R.A. This latter point is specially important, to my mind, as I personally hope to obtain the very influential support of the University in our schemes.

The object which I personally have in view, and the object which those of us have who are associated in formulating this scheme, is to encourage, co-ordinate and unite as the result of one great team all the efforts which are being expended at present in the Veterinary Colleges, in the Universities and among private workers and it is also hoped that our scheme will be a big step towards bringing our own work into closer co-operation and touch with that of sister Institutes.

I believe that the Theiler Institute spends something like £120,000 p.a. in salaries and upkeep. If the A.D.R.A. had £100,000 p.a. to spend I do not think they could command the services of all the different "ologists," as I call them, necessary to the complete and simultaneous exploration of any given field of research. There are veterinarians who are great experts in some particular domain and similarly there are medical men who are great specialists in some particular domain. There are workers of all degrees. Our object is as I say to co-ordinate them into one great team.

As I told Professor Gaiger, I know of no suggestion to appoint anybody but a veterinarian as Director of Moredun Institute. I think we are all agreed that it is essential that the person filling that post be a veterinarian. The whole scheme, in fact, is intended to be a scheme for veterinary surgeons to carry out the great work with such assistance as medical men of great influence and possessing an extremely high laboratory technique in their own special branches are able and willing to give.

I should like to enlarge upon the subject of this letter and to go into greater detail, but the position at the moment is that I with three other Directors of the A.D.R.A., have been appointed as a Committee to meet representatives of various other bodies and to discuss a scheme which will then have to be presented to the main body of the Directors of the A.D.R.A.

As our scheme is not yet complete and especially so as we are now a little embarrassed by the Resolution of your Association, we have not yet had an opportunity of presenting a recommendation to the Directors of the A.D.R.A., and it would therefore be improper for me to say too much until the Directors have had time themselves to consider and discuss such proposals as will I hope soon be laid before them.

Perhaps you will be good enough to explain to your Council the position as far as I have felt at liberty to give it to you. I will ask you to assure your Council that the expression of their views will be duly laid before the Directors and the members of the other bodies with whom we are conferring and full weight will be given to the expression of their views.

I should like to suggest for the consideration of your Council or for the consideration of your President if your Council are not to meet again for some time, whether they would not think it desirable for them to publish this my letter to you in *The Scottish Farmer* as well as in your technical journals.

Yours faithfully,
F. L. WALLACE.

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NATIONAL VETERINARY MEDICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.
10 Gray's Inn Square,
London, W.C.1.
23rd October, 1929.

Falconer L. Wallace, Esq.,
of Candacraig and Balcairn,
Strathdon,
Aberdeenshire.

Dear Sir,

I thank you for your letter of October 9th which has been placed before the President of the Association.

In regard to your first paragraph, I am to say that the President is pleased to have your assurance that the source of our information was an incomplete and preliminary sketch of a proposed plan, which has since been amended. The President trusts that in its final form this plan will be found acceptable by the veterinary profession and will include a recommendation that a veterinary surgeon should be appointed as Director of Research. He is reassured to hear that it is not contemplated to appoint anybody but a veterinarian as Director of the Moredun Institute, but would emphasise that, in the judgment of the National Veterinary Medical Association, this is not sufficient: it is essential that he should be the person to initiate and direct (and control) all schemes of work in connection with the investigations into animal diseases in Scotland performed by or for the Animal Diseases Research Association, and it is desired again to stress that there are many members of the veterinary profession of the experience and standing required, well able to give efficient service in carrying out this work whose services can be obtained if an adequate salary is offered.

Regarding co-ordination with other branches of science and scientific bodies, the President feels that any points about which you may be in doubt can be cleared up if the Directors of the Animal Diseases Research Association will make themselves acquainted with the methods and procedure adopted by other similar institutions, and he believes that if the Institute until recently directed by Sir Arnold Theiler is taken as a pattern it will be found that in that Institution veterinary surgeons attend to the whole of the work in their domain and that other branches of science which are complementary to that work are subordinate thereto and not vice versa.

I am to say, in conclusion, that the President has no objection to your letter of October 9th, and this reply being published in *The Scottish Farmer* and in the Association's Journal (*The Veterinary Record*) if you so desire, and he sincerely hopes that a way may be found to meet the wishes of the veterinary profession as it would be lamentable if the good work your Association is doing in the investigation of animal diseases were jeopardised by any hasty action at this moment.

Yours faithfully,
F. KNIGHT,
General Secretary.

"The British Medical Journal" and Veterinary Education.

Under the heading "Veterinary Education," *The British Medical Journal* of November 9th, published the following annotation, following upon the publication of the Departmental Committee's Report on the Reconstruction of the Royal Veterinary College:—

"Some months ago there was issued the report of a Colonial Office committee on veterinary education in connection with the development of the non-self-governing possessions, and a few days ago the report of another committee on veterinary matters was published. The latter dealt with the condition of the Royal Veterinary College in London, and with undergraduate rather than post-graduate education. Both reports have one feature in common—a sweeping condemnation of the state of the buildings in Camden Town. The latest report, in fact, goes so far as to state that 'the condition of the Royal Veterinary College is a national disgrace. The building is for the most part in a state of dilapidation, and much of it has been condemned by the local authority as a dangerous structure.'

"Britain in matters veterinary is in a peculiar position. It is the most important stock-breeding country in the world—especially bloodstock—and the Briton has a higher ethical conception of animal life than any other race. Yet, so far as public support and financial encouragement are concerned, veterinary education and research is more neglected here than in practically any other important land, and it is only because of the altruistic enthusiasm of a few that the British veterinary diploma is still regarded as one of the foremost in the world. There are, however, signs that a new interest is being taken in the subject.

"The Royal College of Veterinary Surgeons a few years ago raised the entrance requirements for the study for its diploma to the Arts standard; more recently it has agreed to extend the period of professional education to five years. The Colonial Office report proposed a comprehensive scheme of post-graduate education and research, and made recommendations as to pay and status which would encourage the best type of men to enter the Colonial veterinary services. In the near future, therefore, there should be an increasing demand for adequate undergraduate training facilities. The present report makes many concrete proposals toward providing these, and placing the London college on at least as good a footing as, say, the Edinburgh college (although even there extensions are urgently required to meet the growing demand for veterinary education). It is proposed that the present buildings in Camden Town should be razed to the ground, and that entirely new buildings, costing about £300,000, should be erected in their place. . . . . The reconstituted college should form a school of London University, a course which would not only enhance the status of the college, but would bring its students into much more intimate contact with those in other branches of learning.

"The medical profession in Britain in recent years has found that much good can come from a closer co-operation between the two branches of the greater medicine, and study of comparative medicine has proceeded faster and in a more satisfactory manner in this country than elsewhere. An adequately equipped veterinary school in the University of London would do much to foster that growing co-operation, and make the results more valuable to both professions."

CLINICAL AND CASE REPORTS.

Case Series Discussion at Cardiff.

We reproduce below a series of cases reported to a meeting of the Mid-West and South Wales Division, N.V.M.A., held at Cardiff on October 18th, 1929, together with the discussion which followed their presentation.

Rupture of the Diaphragm in the Horse.

By E. P. Evans, M.R.C.V.S., Cardiff.

Subject. A horse named "Lancer," ten years old, which had worked underground five-and-a-half years.

On August 20th last, this horse was taken, at 3-30 p.m., to work during the repairing shift. The work he had to do was only six journeys to the coal face, a distance of 200 yards. Each journey contained one empty tram to the coal face and, on the return, one full of rubbish.

At 8-30 p.m. he was attached to a tram loaded with timber for the coal face. When on his way he staggered for a few yards, then fell and died immediately.

Post-mortem. The diaphragm was ruptured perpendicularly on the left side nearly its whole length, the rupture being of recent occurrence. The whole of the stomach and spleen and the greater part of the liver were lodged in the thorax.

This was the largest rupture I have experienced during the whole of my professional career.

Causes. Excessive tympany of stomach and bowels, accidents, including complicated fracture of the ribs. Would atrophy of the muscular part be one cause?

In this case I am inclined to the opinion that the loaded tram left the rails, excessive strain causing the rupture of the diaphragm. In a large majority of cases reported the rupture occurs on the left side. Why is this? The experiments made and conclusions arrived at by Messrs. G. B. Brook, B.Sc., M.R.C.V.S., and J. W. H. Holmes, M.R.C.V.S., D.V.S.M., published in the *Veterinary Record* for September 21st last, under the heading "Traumatic Rupture of the Diaphragm in the Dog," are convincing.

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A Ready Tale.

When an accident occurs to a horse, it is seldom that the truth as to how it occurred can be ascertained. Should another man be present with the haulier, the difficulty is increased, as they screen one another. I will relate one case, which is typical of the rest. I was in one of the underground stables when a horse named "Jacob" was brought in, very lame in the off hind limb,—at the end of the morning shift,—by the man in charge of the hauliers in the district. It was the duty of the haulier to bring his horse to the stable, but he arrived later. The man who brought the horse had his tale ready, *viz.*, the horse had picked up a wire nail two inches long; he secured a pincers, but two men, pulling together, failed to pull the nail out. When the haulier arrived later, his explanation was a repetition in exactly the same words. I examined the foot but could find no evidence of a nail having penetrated the horn. I asked the haulier to point out where the supposed nail had penetrated. He hesitated, then fixed on the point of the frog, and said that the nail must have dropped out on the way to the stable.

The horse had met with an accident. The hock was greatly swollen, hot and painful to the touch. A few days afterwards I overheard two colliers talking about the accident to "Jacob." I cautiously approached them (fortunately, I was not recognised), and got from them how the accident occurred. There were two horse journeys, the second close to the first. The horse attached to the first journey suddenly stopped, and that attached to the second could not pull up in time, and was thrown on to the side.

Mr. W. D. REES: In your first case did you say what part of the diaphragm was ruptured, the tendinous or the muscular portion?—Both were ruptured.

Mr. REES: I have never seen an *ante-mortem* rupture of the muscular portion. In regard to the case of the horse with the injured hock, which was given as an instance of the difficulty experienced at getting at the true history of the occurrence, if such a thing took place at one of our collieries, the man concerned would find himself on the unemployed list. When one goes underground one is astonished that more accidents do not occur, but when such do occur, I seldom have any difficulty in finding out the cause.

Mr. H. S. ROBINSON remarked that it was interesting to him to learn that the horse with rupture of the diaphragm died immediately: was that the usual thing in diaphragmatic rupture? He had seen cases of colic in which horses died with rupture of the diaphragm: was one to believe that that was the cause of death?—That is the explanation given.

Mr. W. R. WILLIAMS said that by a curious coincidence he was visiting a colliery that morning where he had a case exactly like that reported by Mr. Evans. He could not find that any accident occurred. The subject was a young horse, working on a very heavy gradient, and through some excessive strain the animal sustained a ruptured diaphragm. He thought that the driver had failed to observe what had occurred, and persisted in working the horse, with result that it dropped dead in front of the tram.

A MEMBER: How long after death did Mr. Evans make the *post-mortem*?—The same day. It is the only case of rupture of the muscular portion of the diaphragm I have ever seen. There was very little hæmorrhage. The animal might have been failing before the rupture, but there was no history of any colic or of accident. I think that the actual cause of death was asphyxia and shock. The gradient was a slack one.

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UTERINE TORSION IN THE COW.

By T. J. LEWIS, M.R.C.V.S., Caerphilly.

I have no written notes regarding this condition, and I do not intend to deal with it in all its aspects, but merely to present a case of torsion of the womb which I encountered some four years ago.

I was called to the cow, which was down in a field and due to calve. She was shewing all the symptoms of milk fever, but a calf was in its normal position and, as her water bags had not ruptured, I though it best to leave things alone, and to carry out the usual milk fever treatment. This was at 1 p.m. I inflated the udder, propped her up, and left instructions to the man to look after her through the night until she got up. On calling next morning I found that during the night, the man had gone to sleep, and that when he woke up the cow had disappeared, and she could not be found for a few hours. When she was discovered, she was on her feet, but had not calved. I examined her again and found twist of the womb. I carried out the usual method of rotation, and, after rolling the cow twice, she practically calved herself.

I have had five cases of torsion in my comparatively short career, and in each case I have had no difficulty in getting delivery, but I have not had a live calf. I reduce the torsion by finding out which way it runs and always rolling the cow towards that: of course, you have to keep your hand inside.

I mention this case as it establishes the time at which torsion took place.

Mr. E. C. BOVETT asked what was the idea of keeping one's hand inside.—To prevent the whole thing turning round: you have to try to keep the neck of the womb stationary.

Mr. BOVETT observed that he should not like the meeting to think that all those cases were so easy. He had seen five (three in cows and two in ewes), and he had not succeeded in righting any of them, although he had rolled the cows for miles. (Laughter.) One cow had a calf's foot through, and he thought he was lucky, but even by dragging on that while she was rolling he could move nothing.

Mr. J. R. HEWER said that he had had quite considerable experience of these cases and he agreed that the cow should always be rolled towards the torsion. The calf seemed to act as a fulcrum. He had had the same satisfactory experience as Mr. Lewis: every one of his cases of uterine torsion had been dealt with very easily and had turned out well. with one exception—a case in which rupture of the womb occurred in consequence of the cow straining and pushing one of the calf's legs through the wall of the organ.

Mr. J. C. COLEMAN said that, in his experience, partial torsion of the womb was exceedingly common; complete torsion very rare. The method of throwing was simply a matter of one's own liking: he preferred to put a rope round the horns, another round the chest, carried back and looped round the chest and again round in front of the udder, and pull the end.

Mr. LEWIS said that that was his own method. He had reduced most twists with ease, but he rolled the cow the opposite way of the twist and kept his hand in as far as he could get it, to help the womb over, if possible.

One case he had six months ago was a remarkable one. This cow had shewn signs of calving for three or four days, and when he saw her, on the Sunday morning, she was still showing signs of calving, but the cervix was closed, and he could only get one finger in. By working at it he gradually got the cervix more dilated, and then he discovered that there was a big calf lying right away from him. After consideration he decided that it was not a case to tamper with and he had her destroyed, when he found that, although the head and legs were in the womb, the whole of the rest of the calf was amongst the intestines. That was the only case of torsion of the womb in which he had not been successful.

Mr. BOVETT sought to elicit from Mr. Coleman a little more information as to the difference between complete and partial torsion, to which Mr. COLEMAN replied that when one found the uterus turned round and one could not get the hand in, the torsion was complete, but occasionally the calf would be turned on its back and the womb would be carried with it—a sort of half twist: that was partial torsion, in which condition one could insert the hand and by manipulation reduce the torsion.

The HON. SECRETARY (Mr. C. E. Perry) stated that the condition described by Mr. Lewis was not a common one, but in thirty years' experience he had had several cases. He had been more or less successful with the method adopted by Mr. Lewis. It had been his experience, however, that the first time he turned the cow he turned the wrong way, but one could always tell because, in that case, the twist would tighten.

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Contagious Granular Vaginitis.

By J. L. Perry, M.R.C.V.S., Cardiff.

I do not remember this subject ever coming under discussion at any of our meetings and, having had a rather troublesome outbreak to deal with lately, I thought it might provoke a useful discussion if I recorded it. The disease is not what one would call a common one, but possibly some of you in large dairying and cattle-breeding districts may have met with it frequently.

My experience was with a herd of twenty-seven cows. When I was called in I found seven of them affected and as the milk supply had diminished in most of them the owner was in rather a nasty frame of mind. Eventually every beast became infected in spite of (somewhat inefficient) isolation—isolation on most farms is bad, and really two sets of buildings are required. Five weeks elapsed before the disease finally disappeared. The treatment which was most successful was swabbing out the passage with chinosol solution, and then inserting silver nitrate pessaries. These latter were the size of half a black lead pencil, and when placed well up against the os uteri, retained their position well until dissolved.

The disease can be confounded with vesicular coital exanthema (bull-burn), as the period of incubation is the same in each complaint—two to six days—and the means of transmission from animal to animal are the same, but the essential difference is, firstly, that whereas the granular form may be troublesome to eradicate, ordinary bull-burn is said to cure itself in a week or two. One is also sure to find, in the granular form, at first, diffuse spotting in the lining membrane, especially around the clitoris. These spots, in a day or two, become raised, smooth nodules, the size of a pin-head, dark red, and apt to bleed. A rupture of several of these nodules in a limited area may give the appearance of a broken vesicle. In my case I was at first somewhat misled, as the first animals I saw showed scarcely any nodules but plenty of what appeared to be vesicles: possibly I had a double infection to deal with.

Correct diagnosis at an early stage is essential, and I am anxious to know other practitioners' experience, as to me it is difficult to differentiate these two complaints without seeing them in the earliest stages.

The disease is said to be of streptococcal origin and possibly some vaccine treatment would be helpful in a curative or prophylactic way. Perhaps some of you have tried it?

The President (Mr. R. W. Hall) enquired what was the first symptom, irrespective of the diminution in the milk supply, which drew the attendant's attention to the condition.—The cow showed the usual signs of irritation of the vagina: twisting of the tail, straining after micturition, and discharge, and the attendant had the sense to open the lips of the vulva and inspect the vagina.

The President asked what was the nature of the discharge.—Watery and blood-stained at first: then it became muco-purulent.

The President stated that he had had experience of contagious granular vaginitis, but fortunately it had not been so severe as that Mr. Perry had described. In the majority of his (the President's) outbreaks, although the herds in which it had broken out had been large, the number of animals affected had not exceeded two or three, and he was rather questioning the extreme virulence attributed to it in most text books. How did Mr. Perry explain the fact that so many cows were affected in his outbreak, and what was the method of spread?—The usual method of transmission is such as operates in contagious abortion: the beasts lying next each other. From first to last the man had it on his premises for five weeks, and every cow was infected.

The President asked if the bull was used amongst the cows during that time. (He understood that the prepuce of the bull became infected with the discharge.)—Yes, about six out of the twenty-seven were served by him in that period. The bull was not examined thoroughly: the penis appeared normal, but was treated as a precautionary measure.

Mr. Coleman enquired if any heifers which had never been to the bull, but which showed this vaginitis, exhibited not only swelling of the limbs but affection of the udder. It would be within the memory of many present that about six years ago he brought before them an exactly similar outbreak, which had occurred in a herd of pedigree Friesians. The disease went through the entire herd, and in the majority of cases mastitis was associated with it and swelling of the legs. It occurred in beasts of only eighteen months of age, that had never been to the bull. Mr. Perry (proceeded Mr. Coleman) had asked about vaccination. He had an autogenous vaccine made and vaccinated the whole herd. He believed that his cases (in the outbreak of which he was speaking) had been suffering with a muco-purulent discharge from the vagina for twelve months before he saw them. All recovered without any untoward result. During the period of the vaccination he used first a chinosol solution, and then a solution of carbonate of soda and boracic acid. In each case he used the dilator to find that every vagina was in an awful state, being covered with suppurating vesicles. All the animals were well in about five months. He might add one further remark, though it hardly came under the heading of vaginitis. He had a peculiar experience, two months ago, of five cases of the condition which was recognised as leucorrhœa, with a very thick, purulent discharge. He tried a stock vaccine (a bacterin) in very large doses, and much to his surprise, they all recovered. There was a second attack in one of the cows, but that responded to similar treatment, and the animals were now in calf, being due to calve about Christmas time.

The President said that his experience of granular vaginitis was that when one put a dilator into the vagina and examined it by means of an electric light, it was very rarely that one found the disease extending as far as the *os*; it was usually to be found around the labia and the clitoris, while in cases of long standing it would spread to the roof of the vagina, but very rarely as far as the *os*.

Mr. Coleman remarked that the cervix was very often affected in his cases.

Mr. Perry said that, as luck would have it, there were no heifers in his affected herd. There was no leg swelling, but there was a rise of temperature and a loss of appetite. He thought the whole point was the differential diagnosis—as to whether one had got the ordinary coital exanthema or the granular variety. He thought that the presence of granular nodules was the specifically diagnostic symptom.

Mr. Bovett said that they got quite a lot of that sort of trouble in Somerset, and they generally found that in "bull-burn" the animals usually got in calf, although "burnt" at the time of copulation, whereas with vaginitis they did not, because the vaginitis set up an acidity of the vagina. For local treatment he preferred glycerin of tannin or glycerin of iodine, but pure glycerin alone would serve the purpose. The last outbreak he had was in a Shorthorn herd. The discharge was more mucus than anything else, but on squeezing the vesicles a little pus could be obtained as well. He treated those anlmals with Genatosan pessaries, with good results.

Mr. Coleman appeared to have been talking about a rather different condition from that with which they were dealing, although to him (Mr. Bovett) there certainly seemed to be some connection between the udder and vagina, in that when one started to milk animals affected

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ABSTRACTS.

Pan-African Veterinary Conference Papers.

A number of papers were communicated to the Pan-African Veterinary Conference held at Pretoria in August, 1929, by members of the Veterinary Staff of Kenya Colony.

J. Walker presented a memorandum on "Research on East African Swine Fever Immunisation in Kenya," in which he describes the progress which has been made since the original studies of Montgomery on this disease. One of the greatest obstacles in these investigations has been the difficulty in securing immune pigs in which to prepare a hyperimmune serum. Unsuccessful attempts were made to immunise pigs by means of the serum of wart hogs which had been inoculated with the virus, by the treatment of virulent blood with Lugol's solution, trypan-blue and sodium potassium bismuth tartrate, and by passage through naturally refractory animals. More promising results were obtained with blood attenuated by storage at low temperature in O.C.G (?) mixture. A large percentage of the pigs inoculated with this product reacted and recovered, and subsequently resisted a test dose of virulent blood. Similar results were obtained with certain tissues (spleen, liver, kidney) treated with toluol, chloroform or formalin. It has thus been possible to obtain a number of resistant animals which are available for the production of hyper-immune serum.

In a paper on "Contagious Pleuro-pneumonia of Goats in East Africa," R. W. N. Mettam gives a description of this serious complaint, which is the cause of immense losses in native herds. The disease is due to a filter-passing organism which, up to the present, has not been obtained in culture. An acute and a chronic form are encountered, and a description of the lesions in each type is given. The virus is found in the lung lesions in acute cases. Certain "cell inclusion bodies" are mentioned and are believed by the author to be similar in character to the inclusions which are found in other virus diseases. All attempts at transmission to cattle, sheep and other animals have been abortive. Even in the goat, experimental transmission is difficult, and can only be accomplished with material from acute cases. Recovery does not confer any immunity against re-infection.

"Pleuro-Pneumonia Contagiosa Bovum" is also discussed by J. Walker. The paper is mainly a summary of the views to date on this disease, and contains no new observations.

(*Continued from previous page.*)

with granular vaginitis they generally tried to micturate; he said that the disease caused the animals to be very restless. Animals did contract the disease by contact, and he thought that the condition could easily be spread by the attendants going round and inspecting first an infected vagina and then a clean one.

The Hon. Secretary (Mr. C. E. Perry) stated that he had at various times met with cases of vaginitis in cattle, but never cases of such virulence as those described by Mr. J. L. Perry. As regarded treatment, he had never had to use a vaccine: he had always been able to cure the condition with chinosol injections or solution of sodium bicarbonate.

Two papers on Rinderpest were presented, namely "Rinderpest Research in Kenya," by J. Walker and "Prophylactic Vaccination against Rinderpest," by R. Daubney. In the former communication, the various methods of obtaining an active immunity are discussed. In Kenya, the serum simultaneous method has been employed since 1910, and, as a result, the majority of the adult stock can be regarded as immune. Progress is also being made with this method in the Native Reserves. For the inoculation of animals which are susceptible to redwater and anaplasmosis, either citrated nasal secretion collected in the early stages of the febrile reaction, or peritoneal washings, freed from red cells by filtration through Berkefeld or Seitz candles, are suggested in the place of virulent blood. The blood of sheep and goats reacting to virulent bovine blood is regarded as unsuitable for the serum simultaneous method. In view of certain disadvantages of the simultaneous method, efforts have been made to obtain an active immunity with extracts of virulent spleen treated with toluol, chloroform and formalin, with encouraging results. Experiments are being continued along these lines.

The efficacy of tissue extracts is also considered by Daubney in his paper. Some preliminary experiments have been undertaken with Kelser's liver and spleen vaccines (treatment by chloroform) and with formalinised liver and spleen. The liver vaccines entirely fail to afford protection against a test dose of virus. The spleen extracts cause slight temperature reactions and the animals are subsequently found to be immune. During these experiments, susceptible animals have been maintained in contact with the vaccinated animals, and in no case has infection been transmitted by animals showing a febrile reaction following the inoculation of the vaccine, although the blood of such animals has been proved to be infective. Formol treated vaccines have been given a trial under field conditions with promising results. A point in favour of these vaccines is that they do not transmit piroplasmosis, anaplasmosis or trypanosomiasis.

The value of modified splenic vaccines has received the attention of S. H. Whitworth in his "Memorandum on Horse Sickness Immunisation." The serum-simultaneous method of immunisation, although generally speaking, satisfactory, has certain disadvantages similar to those attendant on Rinderpest S.S. inoculations. With a view to overcoming these difficulties, the immunising action of virulent spleen, treated with (a) toluol; (b) toluol followed by formalin; and (c) formalin, are considered. The number of animals under experiment was too small to enable the deduction of any definite conclusions, but there were indications that such a method might be of value.

Finally, "East Coast Fever," by J. Walker and S. H. Whitworth contains observations on artificial immunisation and immunity in their relation to the control of this disease. The value of the method devised by Theiler *i.e.*, the intravenous inoculation of spleen pulp, has been confirmed. The percentage of reactions to this inoculation is shown to be very variable, and also the percentage of inoculated cattle which survive exposure to infection, but in general, an immunity of from 64 per cent. to 78 per cent. can be expected. The method gives less satisfactory

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DIVISIONAL REPORTS.

The North of Ireland Veterinary Medical Association.*

SUMMER MEETING AT BELFAST.

The summer meeting of the above Association was held at the Animal Diseases Division, Stormont, Belfast, on Wednesday, August 28th, by the kind permission of the Ministry of Agriculture (Northern Ireland).

The members assembled in the main laboratory at 2-30 p.m., and the following signed the attendance book:—Messrs. A. McLean, D.V.H., J. McLean, J. I. Magowan, D.V.S.M., J. Thompson, W. Ashe King, George Wilson, D.V.S.M., J. McClure Barry, A. Monro (President of the Association), W. R. Kerr, D.V.S.M., and H. G. Lamont, M.Sc. (all of Belfast); Messrs. T. Finch (Dungannon), W. S. Lamont (Cookstown), J. Loughran (Aughnacloy), A. Snodgrass (Strabane), W. F. Huey (Omagh), D. R. Williamson (Moy), Alex. McFarlane, D.V.H. (Ballynahinch) R. W. Cassells (Newtownards), S. G. Stewart (Comber), H. Gilmore (Kirkcubbin), J. A. Gault and F. J. Boyle (Ballymoney), F. Russell and A. M. Crichton (Lisburn), J. W. Morrow (Coleraine), A. P. Logan (Ballyclare), J. Kernoghan and W. Henry (Ballymena), J. H. McCrea and J. Bradley (Londonderry), J. B. Kyle (Limavady), H. L. McConnell and W. J. G. Jones (Newry), and H. McConnell (Armagh).

Visitors: Messrs. Barrett Best, G.V.O. (Nigeria), S. L. Black, V.O. (Sydney), R. Moore, D.V.S.M. (Carndonagh), and J. Gregg, O.B.E. (Belfast).

Apologies for non-attendance were received from the following members: F. W. Emery, C.V.O. (Northern Ireland), H. C. I. Kelly (Portadown), F. W. Hart (Enniskillin), and J. Ewing Johnston (Belfast).

On arrival the members were shown over the laboratories and outbuildings, and a brief description of the work carried on was given by the Acting Head of the Division, H. G. Lamont, M.Sc.

At 3 p.m. the members adjourned to the lecture room where, in the unavoidable absence of the Right Hon. Sir E. M. Archdale, Bart., Minister of Agriculture, and Dr. Gordon, Permanent Secretary, the members were officially weclomed by Messrs. J. V. Coyle, O.B.E., Assistant Secretary to the Ministry of Agriculture, and Mr. Getty, Acting Chief Inspector.

Mr. Coyle, speaking on behalf of the Ministry of Agriculture, said it gave him very great pleasure to welcome the members there. Continuing, he said that the Ministry fully appreciated the co-operation received from the veterinary profession in its efforts to control animal disease, and he emphasised the value of meetings of that kind. He pointed out the mutual advantages which would accrue from a frank interchange of ideas between research workers and practitioners, and expressed the hope that the meeting would be a great success both from a professional and social standpoint.

Mr. Getty in a happy speech, assured the members that it was the Ministry's desire to give them every possible assistance and, speaking on behalf of the staff, said they were delighted to have them there that day, and hoped that the good relations which prevailed would long continue.

The Agenda was then read by the Secretary.

The PRESIDENT (Mr. A. Monro) on behalf of the N.I.V.M.A., thanked Dr. Gordon for his kindness in permitting the Association to hold its meeting and carry out the demonstrations at the laboratory. In the course of his remarks he added that it was unnecessary to draw the attention of the members to the keen interest taken by Mr. Coyle and Mr. Getty in veterinary matters in Northern Ireland.

Proceeding, the President said it was not his intention to proceed with the usual custom of reading and discussing the minutes of the last meeting. He mentioned that it was his sad duty to place on record the deep sense of loss sustained by the deaths of Mr. Kyle, Sen., Limavady, and Mr. Thompson, Belfast. They were highly respected members of the profession; they attended the Association meetings regularly, and he should recall their names with affection and reverence. As a mark of their sympathy the members then stood a few minutes in silence.

The President then called on Mr. Lamont to read his paper on "The Group of Respiratory Diseases known as Blows in Pigs." Mr. Lamont's paper was received with loud applause. It was unanimously decided to postpone the discussion on the paper until the next meeting in order that members might have an opportunity of reading it in the *Record*.

The next item on the programme was the demonstration, by Messrs. Kerr and Lamont, of Neilsen's sterility operation. The methods adopted in examining sterile cows were first shown, then the actual operation was carried out. A brief résumé of Nielsen's work on sterility was given by the demonstrators and the underlying principle in treatment explained. Difficulties encountered in carrying out the examination and operation were mentioned and methods taken to avoid these were described. This demonstration provoked an interesting informal discussion. The members on the whole were well satisfied with the operation, 80 per cent. success being commonly obtained.

At 4 p.m., Mr. GEORGE WILSON, M.R.C.V.S., D.V.S.M., Head of the Dairy Bacteriological Dept., Queen's University, and Ministry of Agriculture, gave an excellent demonstration of the intradermal tuberculin test. Animals

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results in the calf. East Coast fever is transmissible by means of blood, spleen pulp and gland juice inoculated by various routes, but by no method is a reaction invariably produced. Similar results have been obtained with emulsions of ticks removed at various stages. Inoculations with blood and with tick emulsions give a poorer protection than the spleen pulp method. Spleen and glandular material treated with either formol or toluol proved to be devoid of any value as immunising agents. Splenectomy of recovered animals does not give rise to a break down to East Coast fever, and splenectomy in susceptible cattle has no influence on susceptibility or the course of the disease.

R. E. G.

* Received on 11th October, 1929.

in all stages of this test were on view, including positive and negative reactors. Animals just inoculated and animals at the 24th, 48th and 72nd hours were shown. This completeness of arrangement was greatly appreciated by members.

Mr. Wilson opened an informal discussion on the test by describing its advantages and disadvantages. He quoted the findings of the Committee of the Medical Research Council in this matter, and in the course of his remarks placed special emphasis on the quality of the tuberculin used. He mentioned incidentally that the tuberculin prepared by the Institute of Animal Pathology, Cambridge University, was standardised on bovines. He believed that in the not-too-distant future the Home Office would make the intradermal test compulsory for their Grade A (T.T.) milk scheme, and specifying that tuberculin prepared in a similar manner to that prepared at Cambridge be used.

Some interesting experiences in regard to "doping" were related by the members and, in reply to questions on this point, Mr. Wilson said that the intradermal test was not influenced by "doping." A member present remarked that the sale of tuberculin should be controlled and that this omission did not reflect much credit on the governments concerned.

At 5 p.m. the meeting adjourned for tea, the members being the guests of the President. On the conclusion of tea Mr. JOHN KERNOGHAN, of Ballymena, one of the original members of the Association, rose to propose a vote of thanks to Mr. Monro for his splendid hospitality. In the course of his remarks Mr. Kernoghan said this meeting would live as a record one in the annals of the Association, and that it spoke well for the popularity of their President that so many members, especially so many young members, were there that day. He congratulated Mr. Monro on this most enjoyable and interesting meeting, and said that the arrangements were perfect. It gave him great pleasure to convey the thanks of the Association to Mr. Monro for his hospitality.

Captain GREGG, in seconding, expressed his pleasure in being there that day. The meeting was instructive, enjoyable, and extremely interesting. He paid tribute to the qualities of their President, and said that he had done much for the profession in Northern Ireland in his own quiet unobtrusive way. He had very great pleasure in seconding this motion, and asked the meeting to pass it in the usual manner.

In rising to reply, Mr. MONRO thanked the members for their presence. He added that it spoke well for the future of the Association to see so many of the young members of the profession with so much enthusiasm. He thought their best thanks were due to the Ministry for the privilege of having the meeting at Stormont, and to Mr. Lamont and his colleagues for the excellent programme provided. (Applause.) In an informal discussion which followed, the members present expressed the hope that the meeting

MEMBERS OF THE NORTH OF IRELAND VETERINARY MEDICAL ASSOCIATION, AS PHOTOGRAPHED AT STORMONT.

[*Reproduced by courtesy of the "Belfast News-Letter."*]

Back Row—A. M. Crichton, W. J. Jones, J. W. Morrow, Capt. J. Gregg, W. Ashe King, H. Gilmore, A. McClean, J. Gault, J. Kernohan, S. G. Stewart, R. Moore, J. B. Kyle.
Middle Row—S. G. Black, W. R. Henry, F. Russell, D. R. Williamson, J. H. McCrea, J.McClean, J. Loughran, H. McConnell, Barritt Best, J. Magowan, W. F. Huey, J. A. Bradley.
Front Row—(Standing) J. B. Caruth (Sec.); A. P. Logan, F. J. Boyle, W. S. Lamont, J. Thompson, H. G. Lamont, H. G. McConnell, A. Munro (President), G. Wilson, A. Snodgrass, T. Finch, W. R. Kerr, J. McClure Barry.

at Stormont would become an annual affair. Mr. J. H. McCrea, on behalf of the North-west members, asked if it would be possible to arrange a meeting at Portrush. The President, replying, said that the Council would consider the matter.

The meeting was resumed in the laboratories, where a superb collection of morbid specimens and slides was on view. Queen's University kindly lent twelve oil-immersion microscopes to the Animal Disease Division for the purpose of the meeting, and some exceptionally fine specimens were shown. The specimens were from all types of domestic animals and included an interesting collection of mounted specimens illustrative of poultry diseases. Melanomas, malignant tumours, tuberculous uteri, exhibits illustrating osteomalacia, etc., were on view. In addition, Capt. BARRY, the City veterinarian, with his usual courtesy, provided an interesting collection of specimens encountered by him during the course of meat inspection in the City abattoir, and personally demonstrated these. The specimens were: heart and lungs of cow—dropsy; heart, lungs and diaphragm cow—tuberculosis; liver showing tuberculous capsule and substance; mesentery tuberculosis; angioma of liver—ox; suprarenal and kidney, sarcoma; liver, cancer; uterus and ovaries, cancerous growths; omentum, tuberculosis.

An interesting collection of specimens shown by Mr. W. S. Lamont, Cookstown, included:—

(1) Mature specimens of Pentastome worms from the nasal cavities of dogs treated by him for "Snuffles."
(2) Melanoma, weighing 8¼ lbs.
(3) Lympho-sarcoma involving lymph glands and kidney, cow.
(4) Adeno-carcinoma—liver ox, with secondaries in lungs.
(5) Enlarged tuberculous mesenteric glands.

Mr. EWING JOHNSTON sent an interesting tracheal fibroma removed from a horse. The tumour embraced the terminal portion of the trachea, and was the size of a small football.

At 7-15 the meeting was declared closed.

J. B. CARUTH, *Hon. Secretary.*

PARLIAMENTARY NOTE.

The Colonial Veterinary Services. Mr. Lunn, replying to Mr. Ormsby-Gore in the Commons on November 6th, said the decision on the recommendation of Lord Lovat's Committee on the Colonial Veterinary Services for the establishment of a School of Tropical Veterinary Science was deferred until the report of the Departmental Committee on the reconstruction of the Royal Veterinary College at Camden Town was available. This report had now been issued, and the question would be further considered in the light of the recommendations contained in it. It was hoped that it would be possible to bring the proposed Colonial Veterinary Scholarship scheme into operation next year. All the Colonial Governments which were asked to contribute towards the expenditure involved had agreed to do so, and the Colonial Development Advisory Committee were now considering an application for a grant from the Colonial Development Fund to meet the one-third of the annual cost of the scholarships which was the portion that Lord Lovat's Committee recommended should be provided from United Kingdom funds.

Mid-West and South Wales Division, N.V.M.A.

CLINICAL PROGRAMME AT CARDIFF.

"A day with the general practitioner" would have supplied a fitting title for the programme provided for the Autumn Meeting of this Division, which was held at Cardiff on Friday, October 18th, 1929, inasmuch as, in addition to the consideration of certain clinical cases such as the "G.P." may, but trusts that he will not, meet in his day's round, opportunity was afforded for the discussion of the innumerable cases, presenting interesting features, with which he expects to be confronted at any time.

The President (Mr. R. W. Hall) occupied the Chair, and there were also present Messrs. E. C. Bovett, J. C. Coleman, E. P. Evans, A. F. Good, G. C. Henson, J. R. Hewer, J. Howard Jones, P. J. Lewis, R. Moore, J. L. Perry, J. S. Pike, J. O. E. Powell, W. D. Rees, H. S. Robinson, E. Sayer, C. D. Watkins and W. R. Williams, together with Mr. C. E. Perry (Hon. Secretary) and, as visitors, Mr. B. H. Gale and Major D. A. Gillmor.

The minutes of the previous meeting, having been published in the *Record*, were taken as read and were signed as correct.

CORRESPONDENCE.

(1) From Mr. A. S. Adams (Hon. Treasurer), Captain W. A. Austin, Messrs. J. R. Baxter, W. T. Edwards, A. E. Roberts, Major D. M. Storrar, Mr. W. R. Watson and Dr. Colston Williams (Hon. Member) apologising for their inability to attend the meeting.

(2) From the Secretary of the N.V.M.A., enclosing a pamphlet relative to the Scheme for the Eradication of Bovine Tuberculosis which has been proposed by the West of Scotland Division of the Association.

On the proposition of Mr. J. L. PERRY, seconded by Mr. SAYER, it was agreed to remit this matter to the Division's Council for consideration and report.

(3) From the Hon. Secretary of the Eleventh International Veterinary Congress, inviting the appointment of two representatives.

It was agreed, on the proposition of Mr. COLEMAN, seconded by Mr. HEWER, that the President and Secretary, who already represented the Division on the Organising Committee of the Congress, should stand, and that their fees be paid by the Division.

REPORT OF COUNCIL MEETING.

The HON. SECRETARY reported that the Council of the Division met at Bristol at the end of August, when, in addition to discussing arrangements for the holding of that Cardiff meeting, consideration was given to the question of the control, with a view to its eradication, of sheep scab. The matter arose from a letter sent down to all Divisions by the Secretary of the N.V.M.A., which he would read to the meeting. [This letter was published in our issue of July 13th.—Ed.]

This matter, proceeded the Hon. Secretary, was very fully discussed, and it was eventually decided that a resolution be sent to the Secretary of the Royal Agricultural Society, through the N.V.M.A., in the following terms: "That the Mid-West and South Wales V.M.A. suggests that all sheep coming from an infected area should be examined a month after reaching their destination."

That resolution had been sent and an acknowledgment thereof received. He (the Secretary) thought it as well that the general meeting should, if it thought fit, sanction the action of the Council in this matter.

Mr. COLEMAN proposed: "That the action of the Council be approved," and asked: Is it not a fact that all sheep coming into infected areas are dipped immediately before they go and soon after they arrive at their destination?

The HON. SECRETARY: That is so, but the Council was of opinion that they should be examined a month after arrival.

Mr. COLEMAN: I quite agree.

Mr. HEWER expressed the opinion that sheep should be dipped two or three times shortly after clipping, because many sheep were moved from one county to another and, through the existing variations in different counties as regards dipping procedure, many escaped adequate dipping, thereby spreading the disease. Double dipping should be universal and should be carried out over a specific period shortly after clipping.

The meeting endorsed the opinion, now expressed by the Hon. Secretary, that the letter should be referred back to Council, in order that further consideration should be given to the matter, in the light of the views expounded by Mr. Hewer, and a report made to the next General Meeting.

New Member.—On the proposition of the HON. SECRETARY, seconded by the PRESIDENT, Mr. B. Gale, of Sandford, near Bristol, was unanimously elected to membership of the Division.

ANY OTHER BUSINESS.

Under this heading, Mr. COLEMAN said that, at the Council Meeting of the R.C.V.S., held early in the month, the desire was expressed by many members that the weight of the Mid-West and S. Wales Division should be brought to bear on Mr. Rees to persuade him to allow himself to be nominated for the next election. He would like to suggest that Mr. Rees' permission be obtained and that the President should nominate him and Mr. Sayer second. (Applause.)

The next point with which he wanted to deal was to inform them that the resolution sent from the Division to the Council of the N.V.M.A. respecting the renaming the grades of milk under the Milk Designations Order (1923) had been very satisfactorily dealt with. At the Ayr Congress of the Association a morning was devoted to the discussion of the matter, and it was decided that it was necessary that, under the Milk (Designations) Order the re-naming of the grades of milks was imperative. It had been suggested that there should be THREE grades: Certified and Grade A (tuberculin tested) should be amalgamated into one grade, under a name clearly stating that it was from tuberculin tested cows; but the snag in the whole thing was the Grade A, and it was found exceedingly difficult to select a name distinguishing it from milk from T.T. cows, without penalising the producers of the present Grade A. At the present time the Grade A milk was getting the full benefit of the Grade A (T.T.) milk, as a majority of the public think it the best.

He brought that up that afternoon for the reason that this Association sent the original resolution to the N.V.M.A. and that perhaps the members would like to have a hand in supporting names for the proposed grades, which he (Mr. Coleman) would bring before the Public Health Committee at the next meeting. If that Division, or any individual members of it, could make any suggestions in that regard, it would be a very great help to the Committee which had the matter under consideration.

The present grades were: Certified; Grade A (T.T.); Grade A (Pasteurised).

It was therefore proposed to amalgamate the first two and re-name the third, and Pasteurised would be the last-named (Grade A) Pasteurised.

By this it would be seen that Pasteurised *ordinary* Milk would then not be recognised under the Milk Designations Order at all.

It was a most difficult question to consider, and he would be very much obliged if any member could give them any assistance.

The HON. SECRETARY thought that this matter might be referred to the Council meeting of the Division, which would be held next month. This was agreed, on the proposition of Mr. COLEMAN, seconded by Mr. HEWER; also, that those who were not members of Council should inform the Secretary, in writing, of their views and suggestions, a circular letter inviting these to be sent to all members.

The PRESIDENT said that, in reference to Mr. Rees' nomination for Council R.C.V.S. he would like to support everything that had been said by Mr. Coleman. He earnestly hoped that Mr. Rees would see his way clear to accept the honour again.

Mr. REES expressed his keen appreciation of the terms in which both the President and Mr. Coleman had referred to the matter. He had, however, given no thought to the possibility of his standing again for election, and he would therefore take a week or so in which to consider it and let the President and Mr. Coleman know personally what his decision was.

The HON. SECRETARY remarked that, now that he was in South Wales again, he was reminded to ask if any member of the Division could give him any definite instances of cases of "grass disease" occurring in that area. Its occurrence there had been reported to various insurance companies, and they had asked him several times for confirmation, but so far he had been quite unable to obtain it.

Mr. GOOD informed Mr. Perry that he had a case in Cardiganshire in 1923. It exhibited all the recognised symptoms of "grass disease," but the animal died, responding to no treatment.

Mr. EVANS stated that he had had one case in the year 1922.

Mr. GOOD said that he was told, the other day, that two veterinary surgeons were required by the Glamorgan County Council, but he had seen no advertisement of the posts in the veterinary press. He was wondering why the advertisement had not appeared in the *Veterinary Record*.

Mr. HOWARD JONES observed that he had communicated with the Secretary of the N.V.M.A. in the matter, who had supplied him with a copy of the letter which had been sent to the Glamorgan County Council explaining why the advertisement could not be accepted for publica-

tion in the *Record*. [Mr. Jones here read the letter to which he referred, from which it appeared that the advertisement was refused on the ground of inadequacy of salary.]

The PRESIDENT: That letter explains itself. (Hear, hear.)

Mr. HOWARD JONES: I also had another letter from Mr. Knight. I wrote acknowledging his reply and giving voice to my appreciation of the Council's action, and this reply says that this will be reported to the Council at its next meeting.

"That," concluded Mr. Howard Jones, "is the whole of my correspondence in that matter."

The PRESIDENT: I think the action of the N.V.M.A. should be supported and that we should express our deep appreciation of the firm attitude they have adopted in this matter. (Applause.)

Mr. COLEMAN: It is the Council's absolute determination to insert in the *Record* no advertisement in which the salary offered is below the scale which they have fixed for such appointments, and I would urge that no members of the R.C.V.S. should weaken their back by applying for such a post unless it appears in the *Record* as carrying a salary of £400 per annum. (Hear, hear.)

It was proposed by Mr. MOORE, seconded by the HON. SECRETARY, and carried unanimously, "That the thanks of the Mid-West and South Wales Division be accorded to the Council of the N.V.M.A. for their action in refusing to insert, in the *Veterinary Record*, an advertisement for veterinary officers under the Glamorgan County Council at a salary which does not conform to the Association's scale for such appointments."

CLINICAL MATTERS.

The members now proceeded to the consideration of the clinical subjects detailed on the agenda and, in addition, took part in a general discourse on cases of interest, for which time was found in consequence of the inability of one of the Cardiff members, Captain J. H. Stewart, to be present to introduce his series of "Clinical Cases." The subjects on the agenda for discussion were "Rupture of the Diaphragm in the Horse" (Mr. E. P. Evans, of Cardiff); "Uterine Torsion in the Cow" (Mr. P. J. Lewis, of Caerphilly), and "An Outbreak of Contagious Vaginitis in Cattle" (Mr. J. L. Perry, of Cardiff). [These accounts, together with the ensuing discussions on them, will be found in the Clinical and Case Reports Section of this issue.—Ed.]

At the conclusion of the consideration of these cases, the PRESIDENT invited members to relate experiences which they thought would be of interest to the meeting.

Mr. J. L. PERRY said that a farmer client of his had informed him that one of his horses was covered from nose to tail with what the farmer called "uticaria lumps." They had been there for twelve months and he (Mr. Perry) would like to have the opinions of members as to what they could be.

The PRESIDENT expressed the view that the condition was some form of lympho-adenitis. He had had experience of it, and the lumps appeared to follow the course of the lymphatic vessels.

Mr. POWELL related a remarkable case which had occurred in his Practice only the previous week. A man bought a heifer and turned her into a field in which was a round iron cauldron of four feet six inches diameter. He did so at night and in the morning he found that she had tipped up the cauldron which stood on short legs, and had fallen into it. She was curled up in this, wedged in so that she could not get out, though she was struggling for all she was worth. Even when the cauldron was tipped up she could not free herself, and eventually it took no fewer than six men to pull her out. That being accomplished, it was found that there were no serious injuries beyond severe bruising and a badly-cut knee.

The PRESIDENT related that the previous night he had an urgent message to see a pony that was used in a milk cart; the pony could not put one of its hind feet to the ground and the owner thought it had dislocated its fetlock. On visiting the animal, Mr. Hall found a completely-split pastern. The attendant had merely turned the pony round from the manger, without any hustling, yet this complete fracture of the pastern had occurred. He (the President) could distinctly hear crepitus; there was no question about the fracture, or that the pony was quite all right when he entered the stable, there being no history of any accident. He applied four thick plaster of Paris bandages over the leg of a boy's stocking, to prevent friction between the plaster and the skin.

Mr. REES said that he had treated many so-called split pasterns, but he did not regard it as an economic proposition; it was only sound procedure in the case of animals kept as pets.

MORBID SPECIMENS.

Mr. HOWARD JONES exhibited some specimens, illustrative of glandular tuberculosis, which were taken from a Hereford bull. It was a pedigree, three-year-old animal and six months ago the owner refused £140 for him. The bull was reported to him (Mr. Jones) as being tuberculous. The extraordinary thing about the case was the extent of the tuberculous process: every organ in the body was affected. The specimens consisted of the popliteal and prescapular lymphatic glands. The bull showed nothing to within three weeks of the time he was reported; then he went all to pieces.

The speaker also showed what he described as "a beautiful specimen of a tuberculous lesion"; again from a Hereford. The specimen had been growing from the lower layers of the derma.

Mr. Jones also drew the attention of members to his pamphlet entitled "Bovine Tuberculosis and the Tuberculosis Order of 1925," which he had distributed to the milk producers and farmers of the County of Glamorgan and which, he had reason to believe, was greatly appreciated by them. He had a few copies with him, and these he would be pleased to hand to those who desired them.

At the conclusion of this section of the proceedings, the PRESIDENT said that they had all thoroughly enjoyed the interesting discussion on clinical subjects which they had had that afternoon, and it was his duty and pleasure to propose a very hearty vote of thanks to Messrs. Evans, Lewis and Perry for their contributions.

The HON. SECRETARY, in seconding the vote of thanks, said that these gentlemen, by the readiness with which

(*Continued at foot of first column next page.*)

North of England Division, N.V.M.A.*

Discussion of Bovine Tuberculosis Eradication Scheme.

A meeting of this Division was held in the Agricultural Department, Armstrong College, Newcastle-on-Tyne, on Saturday, September 28th, 1929, with the President (Mr. T. M. Mitchell) in the Chair.

The attendance book was signed by Messrs. R. Barker, N. Irvin, P. Snaith, H. Peele, W. A. Doughty, C. Nicholson, J. W. Rider, C. G. Hill, Geo. Thompson, W. Lyle Stewart, A. Scott, H. S. Elphick and J. R. Rider (Hon. Secretary).

Visitors.—Messrs. H. B. Allan and W. Jackson Young.

Obituary.—Before commencing the business, the Chairman made reference to the loss sustained by Mr. John Davidson, in the death of his wife some weeks ago. Mrs. Davidson had endeared herself to everyone. She had worked hard as a member of the Ladies' Committee at the last annual meeting, and the ladies of the Division would miss her. A letter of sympathy, together with a wreath, had been sent on behalf of the Division, which had also been represented at the funeral by several members. Mr. Davidson had returned thanks on behalf of his family, but he (the President) thought that members would wish to give expression to their sympathy by passing a vote of condolence. This he asked them to do in the customary manner. The meeting then stood in silence.

Correspondence.

(1) From Messrs. Hobday, Taylor, Davidson, Christopher, C. Elphick and Simpson, apologising for their absence from the meeting.

(2) From the Secretary of the Northumberland Agricultural Society, Mr. Oswald M. McBryde, asking for financial support from the Association and also from members individually, towards the fund for the provision of an investigation centre into animal diseases at Cockle Park. Professor Heigham, Armstrong College, had agreed to draw up a pamphlet explaining the whole position.

The Chairman said the matter came before the Council at its last meeting, when it was agreed to wait until they

(*Continued from previous page.*)

they had responded to his request that they should introduce subjects for discussion at that meeting, had saved him a great deal of trouble and, as the President had said, had enabled them to enjoy a most interesting afternoon.

The vote of thanks was carried with acclamation, and a similar tribute was paid to Mr. Howard Jones for bringing forward his morbid specimens. In proposing, Mr. Coleman remarked that he saw no reason why that Association should not follow the excellent example set by the Central Veterinary Society, who always made a big feature of the presentation of morbid specimens and interesting cases.

The President's conduct of the meeting was gratefully acknowledged by the members, who subsequently enjoyed a substantial tea at the invitation of the Cardiff practitioners.

C. E. Perry, *Hon. Secretary.*

* Received on 10th October, 1929.

received the pamphlet before proceeding in the matter. The pamphlet had not yet been received.

Mr. Lyle Stewart, Armstrong College, said the publication of the pamphlet had unfortunately been delayed on account of holidays intervening, but copies would be obtainable soon. There was a growing opinion, in Northumberland especially, that sufficient work had not been done with regard to more or less obscure diseases affecting sheep. Local opinion was strong enough to warrant them forming a fund for the purpose. An influential Committee had now been formed, representative of educational officials, farmers, landowners and veterinary surgeons. It would be a very good thing if the Division associated itself as actively as possible with this movement, which was so very needful.

On the motion of Major H. Peele, seconded by Mr. Lyle Stewart, it was agreed to adopt the recommendation of the Council that they await the receipt of the pamphlet before proceeding further in the matter. As private individuals, of course, they could take whatever action they liked with regard to supporting the fund.

A letter, in circular form, had been received from Colonel Brittlebank and Dr. Bullock, with regard to Veterinary Thanksgiving Fund. The recommendation of the Council was that the matter more intimately concerned individual members.

On the motion of Mr. Snaith, seconded by Mr. Thompson, the Council's recommendation was adopted.

The Council's action in connection with a letter from the National Horse Association, was also agreed to, on the motion of Mr. Hill, seconded by Mr. Lyle Stewart.

Nominations.—Messrs. H. P. Allan and J. D. Peele were nominated for membership of the Division.

Bovine Tuberculosis.

A scheme for the eradication of bovine tuberculosis, proposed by the West of Scotland Division (as contained in a specially-printed pamphlet), was discussed. [The text of this scheme was published in the *Veterinary Record* of September 21st.—Ed.]

Major H. Peele, County Durham, who opened the discussion, said: A wide, and may I say bold, scheme such as this must of necessity be subject to a vast amount of criticism, both constructive and destructive.

It may be said that we, as scientific men, should only interest ourselves in the stamping out or prevention of disease regardless of cost. It seems to me, however, that the first thing that would be asked by those who would have to find the money would be, what is all this going to cost? I therefore think that, however good a scheme may appear, we must be in a position to show that it is economically sound. If we could not successfully show this, our scheme would probably be turned down without further consideration.

The first thing, therefore, that strikes me is that no attempt is made to show that this scheme is likely to prove an economic proposition; that is to say, whether the cost would be prohibitive, and on this point I say at once that I look upon the scheme as being far too utopian. I do not attempt to go into any figures, but the fact that it is proposed to carry out almost wholesale tuberculin testing is sufficient to crab the scheme at the outset.

I am inclined to oppose any general application of the tuberculin test; that is to say, to both dairy cattle and store cattle, for the reasons that:—

(1) So many reactors are not at the time of the reaction sources of danger.

(2) There would be such an enormous number of reactors that the old question of what is to be done with them would arise in a more acute form than ever.

Tuberculosis Order. The scheme says that this should be maintained and its scope possibly extended. I think it is unfortunate that the promoters have not given some details of the suggested extension. In my view, this is a matter for very full consideration, and the possibilities of good accruing from amendments of the Order are, I think, very great.

I should like to hear discussed to-day in what directions the Order could be amended, and as a basis I suggest:—

(1) Amendment of the basis of compensation.

(2) Some form of restriction of movement in the case of a herd where one or more animals are found that have had open lesions for some time and have been in close contact with other animals, and where the probability of a widespread infection exists. Would it not be feasible to stop movement of dairy cattle off these premises, excepting for slaughter, for a period of, say, three months, during which time fairly frequent inspections should be made, and possibly, in the first instance, the tuberculin test applied to all in-contact cows? Reactors could be dealt with either on the lines laid down in part A of the scheme or as suggested later.

(3) The compulsory notification of all cases of tuberculosis found by meat inspectors, so that the animals on the holding from which the diseased animal came may be inspected.

(4) Under Section 12 of the Order the prevention of exposing cows for sale that are "hefted" or whose udders are so gorged with milk as to render a manipulation of them for the detection of indurations impracticable.

Milk Special Designations Order. I think that a method of dealing with reactors could be found under this Order. Every encouragement should be given to increase the number of producers of both certified and tuberculin tested milk. Instead of the producer having to pay for a licence, would it not be an inducement for others to come in by the granting of a subsidy which should be sufficiently large to cover the expense incurred in the shape of sterilising plant and the like, and also to allow the producer to sell his milk at the same price as ordinary retailers?

Reactors from these herds must be dealt with in one of the following ways:—

(1) Indelibly brand them and allow them to go on to the market.

(2) Indelibly brand them and have them segregated for prospective slaughter fat. The milk from them could be biologically tested from time to time and they could be kept under observation by veterinary surgeons for evidence of any open lesions, if and when such occurred to be slaughtered.

(3) Immediate slaughter of those ready for butcher either at owner's risk or at market live value. *Post-mortem* examinations to be made in all cases.

(4) Every veterinary surgeon carrying out tests of new cows should be empowered to brand all reactors, or, failing this, should be compelled to report all reactors to the local authority. You are all aware that a veterinary surgeon is frequently asked to test one or more cows for the owner of a T.T. herd, possibly four or five. Of these one or more may react. It is these cows that should be placed under some sort of control.

Applications for producing Grade "A" milk should not be encouraged; in fact, I would advocate the abolition of this designation. If local sanitary authorities see that the existing regulations are carried out, all dairymen would be producing Grade "A" milk. In addition to this, the designation is misleading to the public, who, for the most part, do not understand that this is the lowest grade laid down in the Milk Special Designations Order.

With regard to store stock, efforts should be made to establish public abattoirs and a staff of veterinary officers appointed to inspect the animals prior to slaughter, and to carry out all meat inspection. Any cases of tuberculosis found should be traced to their origin and veterinary inspection of animals on that particular holding carried out.

I am in entire agreement with the view of Colonel Brittlebank, that one of the first things to aim at is the elimination of all open cases from our herds. This can only be accomplished by a frequent and extremely careful clinical examination. Men with profound clinical knowledge are essential for this work, and it means the occupation of a vast amount of time over each herd. So often can the clinician be deceived by a good general appearance of a cow which, on very close clinical examination, is found to show some characteristic in the respirations which will lead to a careful auscultation of the chest and possible discovery of abnormalities indicative of tuberculosis.

I have now said sufficient to launch what should be a full and helpful discussion. The subject matter is full of interest and has been frequently discussed. We must remember that a resolution of our own was sent up to the National and subsequently found its way to all Divisions. The fate of that resolution is well known to you, and as it is only just a year since all this happened it may be well said that the minds of Divisions have probably not altered in so short a time. But still much has happened since then and the question of the prevalence of tuberculosis among human beings and our herds has perhaps come more prominently before the eyes of the public. It is up to us, as a profession, to do all we can towards the stamping out of this scourge, and one way of doing this is to promulgate schemes such as we are discussing to-day and constantly to urge upon the central government the urgent need for stronger united and economic action.

Mr. LYLE STEWART, Armstrong College, said: We have met this afternoon to discuss a scheme for the eradication of tuberculosis from all the cattle in Britain, both beef and dairy stocks. The magnitude of the task is well calculated to dismay even the stoutest heart and impoverish the deepest purse, but the Herculean

proportions of the task are at least equalled by its humanitarian and economic importance. It is, therefore, fitting that the veterinary profession should be in the vanguard with helpful suggestions and advice, for no one knows better than the veterinary surgeon the issues at stake and the best means of combating them. We should, therefore, congratulate the members of the West of Scotland Division of the National Veterinary Medical Association for creating the scheme and placing it before us for discussion to-day.

I feel assured that when this scheme was drafted it was not done with any air of finality, but in order to ventilate the subject in the profession. Indeed, perhaps with true Scottish perspicacity its originators foresaw that it would be wrecked on its maiden voyage, but anon it may be replaced by another and more expedient scheme, and if it happens to serve this important end, the West of Scotland Division will indeed have conferred a bountiful service.

Since the general construction of this scheme resembles that which has been in operation in the United States since 1917, it is of interest to examine American results. The American plan is, of course, based on the tuberculin test and slaughter with compensation of reactors. Statistics collected from official records in the United States and Canada show that, in approximately 90—93 per cent. of all tuberculin-reacting cattle, evidence of tuberculosis is clinically demonstrable at the usual *post-mortem* examination. The remaining 7 per cent. to 10 per cent. constitute what are known as "no-visible-lesion" reactors, and it has been proved that many of these "N-V-L" reactors are actual carriers of virulent tubercle bacilli. American veterinarians consider that a reaction to tuberculin always indicates infection with tubercle bacilli, although not necessarily tuberculous disease, and thus they affirm complete confidence in the tuberculin test, presumably when properly carried out. Thus far, in my opinion, what I shall call the "Scottish" scheme would appear to rest upon a sound foundation, provided always that a reliable certified tuberculin can be produced and its supply controlled.

During the American fiscal year of 1928, 1,002,689 herds, containing nearly eleven million cattle, were tuberculin-tested, and the number of reactors found was 259,435, or approximately 2.4 per cent. No doubt individual states and counties showed much higher and much lower figures, but if this figure can be taken as an index of the incidence of tuberculosis in America, then America has been at once unfettered by serious complications which would undoubtedly confront us in Great Britain, if we adopted a similar policy. A person who stated that the herds in Britain are infected with tuberculosis to a greater extent than those in America, can hardly be accused of rash generalisations. If, for the sake of argument, we take 10 per cent. as the average incidence of tuberculosis in our herds, it is clear that any appropriation of money from government for the Scottish scheme, would only go one-fourth as far as the same sum in America. Or, in order that the eradication should proceed at a reasonable rate, we should require four times the proportional appropriation that would be needed in America. Of course, the "Scottish" scheme stipulates that the amount of eradication work done would be limited to the size of the sum of money provided. If the sum allocated was small, and £10,000 per annum has been mentioned, it is obvious that progress would be slow and accredited areas would be limited to certain favoured parts of the country. Hence would arise the anomaly of taxation of the nation at large to pay for an experiment which for many years can only benefit the few.

It will be apparent that in a country where nearly eleven million cattle have been tuberculin-tested in one year, not only must the veterinary services be large, but there must be a very considerable annual appropriation of public funds. This money is voted by the Federal Government of the United States of America, presumably by the will of the people, and here we have the picture of a clean and virile nation, well versed in the laws of hygiene and educated to the point of paying for cleanliness, which, we must assume, they consider next to godliness. The alternative view is that the scheme for eradicating tuberculosis was foisted upon the American public, as is sometimes said of the liquor prohibition laws, but I prefer to accept the former view. This brings us now to the question, is public opinion in Britain educated to this pitch? Personally, I do not think so, and I therefore regard the Scottish scheme as premature; as being, in fact, many years before its time.

I have not attempted to criticise the details of the Scottish scheme, but merely one or two principles around which it has been planned. In this country we consider it inadvisable to legislate too far ahead of public opinion, and I am averse to too much government assistance. Like borrowing, it dulls the edge of husbandry, and what is wanted to-day is the education of the general public, and particularly of the farmer, who should be encouraged to expend more individual effort against the disease in cattle. I am in thorough agreement with the West of Scotland Division that any scheme against bovine tuberculosis in Britain should aim at the total eradication of infection, of sources of infection, and by this method to prevent the disease. The new method of prophylactic vaccination of cattle against tuberculosis, introduced by Professors Calmette and Guèrin, continues to excite much interest and speculation. The question of the harmlessness of B.C.G. is still a controversial one, and although Professors Calmette and Guèrin have re-affirmed that it is absolutely avirulent and incapable of causing tuberculosis, other workers have been unable to substantiate this claim and have expressed grave doubts as to its validity. Consequently, we must suspend judgment, and I think we are justified in aiming at eradication.

In conclusion, I should like to refer to the more constructive side of the problem of tuberculosis eradication. What is being done at the present time in Britain? Since 1925 the Tuberculosis Order has been in operation and The Milk and Dairies Act imposes inspections which lead to the elimination of tuberculous cows. In operation, the Milk (Special Designations) Order of 1922 makes an indirect attack on tuberculosis, inasmuch as Grade A Certified and Grade A Tuberculin Tested milks are only allowed to be produced from cows which pass regular tuberculin tests. However useful these various Orders are or have been in the past, and I maintain that they have jointly served a very

useful purpose, it is perfectly obvious that the manner in which they are administered only touches the very fringe of the problem of eradication of bovine tuberculosis. Surely the time has come when these Orders should be revised, tightened up, amended and, if possible, extended by a select body of experts. Already in several counties we see the fruit of enlightened public opinion expressed by the extension of the veterinary services, and I construe this as being an important step in the fight against tuberculosis. As a profession I think we should press for a revision of the existing legislation rather than the creation of new. If the members of this young public health service are armed with extended powers of action a considerable decrease in the amount of bovine tuberculosis must follow, and it is even possible that they can accomplish total eradication in a natural but very effective manner.

Mr. THOMPSON said that the basis of valuation of cattle condemned was all wrong. A man who paid £30 to £40 for a cow which appeared to be perfectly healthy, but was afterwards found to be tuberculous, ought to receive more than £5 in compensation. It should be left to the discretion of the veterinary surgeon to value the beast at her worth before she was condemned.

Mr. ALLAN stated that it was wrong to grant certificates to the owner of a herd for Grade A milk, when it was known that such an owner bought his cows in the open market and was never free from tuberculosis in his cows. This country could not stand the wiping out of tuberculous cows wholesale. The better plan would be to get a number of accredited herds established in the country, so that in five or ten years' time, they would be able to bring the Scottish scheme into working order. The real way to get herds tubercle-free was for farmers to breed their own stock from free cattle. If they had free testing by local veterinary surgeons under the Ministry or the County officials, and if they had a number of accredited breeding herds, they could later on think about adopting the West of Scotland scheme. If they cleared off the reactors, where were they to get cows to take their place ? That is, cows that were free. If there was a large number of free herds from which to draw, then they could think about it. It could never be done by going to the open market and buying cows that were not properly tested. At Birmingham there was a scheme whereby people sending milk into the City could have their cows tested free on condition that they disposed of reactors. If that were adopted more generally, some headway might be made.

Mr. HILL also spoke about the inadequacy of the compensation paid for condemned cows which had cost the owner about £40 to £50 each. The man had got to make a living, and it was not right that he should be a martyr to the community by losing money through public administration of an Act. The milk producer got no encouragement to go forward. He goes to the trouble to get regular testing of his herd, in order to produce the best milk, but often finds the other man who does not go to such trouble getting his customers because they are offered milk cheaper than the good milk. In some cases such a man does not get a penny more for his good milk. They should make provision for Grade A (T.T.) milk or pasteurisation.

Mr. SNAITH said that, with regard to reactors, he did not think they had elucidated the matter very much. If any scheme be organised whereby regular testing was carried out, there should be some method of segregation. Public abattoirs would materially assist them in dealing with this question. But the point at issue at the moment was, what were they to do with the reactors ?

Mr. ELPHICK said that there was no doubt that the test properly applied was in most cases reliable. But with regard to this scheme, why it should be suggested that the Ministry should be asked to issue detailed instructions as to technique and interpretation of the test, he did not know. To the man with any experience, there was only one technique and one interpretation, and detailed instructions were unnecessary. Then, if a local practitioner was capable of carrying out the preliminary work of eradication, he was quite capable of issuing certificates to the effect that the herd was tubercle-free. It was not necessary that a representative of the Ministry should do this particular work, if the preliminary work was done by the local practitioner. With regard to the preparation of areas and the supervision and co-ordination of the work, Mr. Elphick said he agreed with all that. The Order, no doubt, should be tightened up. With regard to the suggested attack against the disease in specified herds, Mr. Elphick said their West of Scotland friends wished to look after pedigree and milk recording herds, and leave the little man out in the cold—another instance of one law for the rich and another for the poor. That was not right. In the matter of reactors, surely something should be done by the Government-testing men, who turn down a cow worth about £40, which only afterwards makes about £20 in the open market as a branded cow. The loss on that reactor should be paid, in the interests of the public good. Compulsory areas, contended Mr. Elphick, should be laid down only by the Ministry of Agriculture. With regard to maintenance of herds certified free, Mr. Elphick said the first thing would be to see that the surroundings of the animals were good, and thoroughly disinfected after the affected cows were removed. Certainly it was time that we had public abattoirs, so that we could trace the source of the disease and get to the fountain head.

The CHAIRMAN said that Major Peele had evolved a scheme of his own, which met the case at present better than any one had done. It seemed to be the consensus of opinion of the meeting that this West of Scotland scheme was at the moment impracticable, largely because of the large amount of tuberculosis in the herds of the country. Mr. Stewart assumed that the percentage of tuberculosis in cattle in this country was 10 per cent. The Chairman thought that assumption erred on the side of leniency. It was felt that the West of Scotland scheme was premature; and that they could help towards reducing the incidence of tuberculosis in cattle by such means as periodic inspections and the reporting of tuberculosis in pigs and calves in abattoirs, which would lead to the detection of the affected animals at the source.

Major PEELE moved and Mr. HILL seconded, that the following resolution be adopted, and it was carried, viz.:—
"That this meeting, while regarding the ultimate eradication of bovine tuberculosis as most desirable, consider, as a Division, that the West of Scotland scheme

is at the moment impracticable, and we urge as an alternative the immediate review of the Tuberculosis Order and the Milk (Special Designations) Order, with a view to their amendment and extension, together with a more rigid enforcement of the Milk and Dairies Order, 1926."

It was decided that copies of the resolution be sent to the National Association and also to the West of Scotland Division.

On the suggestion of Mr. STEWART, it was agreed to emphasise the fact, when sending out the resolution, that the sale of tuberculin should be controlled and used solely by members of the veterinary profession, for testing purposes.

SHEEP SCAB.

The SECRETARY then read a printed report of the Conference between the Royal Agricultural Society, the National Sheep Breeders' Association and the Minister of Agriculture, with reference to the reduction, and, if possible, the stamping out of sheep scab in Great Britain. [The text of this report was printed in the *Veterinary Record* of 13th July, 1929.—Ed.]

In the course of discussion, inadequate fines, it was said, were frequently imposed by magistrates upon offenders in allowing their sheep to become affected with sheep scab, which made Mr. ELPHICK remark that there was only one way to stamp the disease out, and that was to have Stipendiary Magistrates.

Mr. SNAITH said he was thoroughly convinced that the existence of sheep scab was due to the stupidity and ignorance of farmers. The double dipping, when loyally observed, helped greatly to keep areas clear of the trouble. Gathering-in days might be more frequent, and inspection could take place at that time. Any farmer with any respect for himself would not put up with the existence of sheep scab for one moment. It was quite easy to eradicate sheep scab if people were honest and open about it.

Mr. JACKSON YOUNG said he firmly believed in an educational campaign in connection with the eradicatiin of sheep scab. He instanced the result of a lecture he delivered upon sheep scab at Stocksfield-on-Tyne last winter, where five outbreaks were reported in consequence. People were in ignorance of the symptoms of the disease. Similar experiences were reported from other parts of the country. The farmer and his servants and the shepherds must be educated up to the pitch when they would be able to detect the disease themselves. It was not easy to eradicate sheep scab where sheep were ranging over deer forests and in mountainous districts in Scotland; it was a different thing when dealing with sheep in fenced-in enclosures. Mr. Young did not think that scientists had quite played their part in this matter. He did not think that they gave much information as to the action of dips—what they did and what they could not do. In this connection he had himself been threatened with libel actions over some dips and their worth. Before dips were used they should be tested, because they could do incalculable harm to the sheep's eyes and wool if they were not just right. The chemists should be asked to help, and the shepherds and the farmers should be instructed as to the proper way to mix the ingredients. A big

(*Continued at foot of next column.*)

From The Veterinarian, November, 1829.

Soundness in Horses.

By Mr. W. PERCIVALL.

(Read at the Veterinary Medical Society, October 21, 1829).

Nunquam aliud natura, aliud sapientia dicit.

It is customary—it appears proper—oftentimes, perhaps, it is politic, for one about to discourse on any particular topic to endeavour, by way of preface or introduction, to impress the minds of his auditory with the importance of the subject, as regards them, and the difficulties with which it is beset, as regards himself. I will leave it to you, gentlemen, to say whether on the present occasion there exists the slightest necessity for any such proem; nay, whether the subject I have chosen for your consideration and discussion be not one of paramount importance to us all, and that, of all others, on which too many of us may possibly entertain different and even opposite opinions. Under these inauspicious circumstances, you may, and very properly, feel inclined to regard me, at the present moment, as having placed myself in a very precarious situation: when, however, I inform you that my motives for so doing are such as lead me to entertain hopes that I shall gain by it more information than I shall probably find myself able to impart; and that thereby a grievous hiatus in veterinary science may be in some measure reduced, you will perhaps, in your known liberality and kindness, find some excuse for me if I attempt that which I feel but too apprehensive the sequel will prove was beyond my abilities to achieve.

Mr. Richard Lawrence, whom you all know to be an author of no mediocre talent and ability, in the year 1809 wrote on the same subject; and that you may learn in what light he viewed the task he had set himself, I will give you a passage from his Preface: "I am the first" (says Mr. L.) "who has undertaken the Herculean task; and am therefore entitled, at least, to the approbation of the public for my good intentions, however they may have fallen short of success." I believe I may assert, without contradiction, that I am the second (among English writers) who has ventured to tread the same arduous course; permit me, then, to claim, on that account, at least, the lenity and indulgence of the Society for the present paper.

Soundness forms the question (to the exclusion, almost, of all others) which is eternally dragging us into courts of

(*Continued from previous column.*)

responsibility rested upon all concerned with sheep scab and dipping. Great care had to be taken in diagnosing sheep scab, and unless there was a parasite, it was not that disease. The evasion of the regulations was a disturbing factor. In Northumberland alone, Mr. C. Elphick and himself on one occasion confirmed about sixteen cases of sheep scab outbreaks that had been due to the evasion of the regulations. This County very wisely had regulations governing the importation of sheep into it and also with regard to dipping operations. The difficulty was the enforcing of the regulations. Yesterday, he happened to be on the boundary of Cumberland and Northumberland, and he saw thousands of sheep going away in motor lorries—where? Mr. Young mentioned that in June, 1929, he wrote an article on sheep scab for the *Journal*, and he noticed that it had been translated into several foreign languages.

A vote of thanks to the President terminated the proceedings.

J. R. RIDER, *Hon. Secretary.*

justice; a situation in which our professional character is often put at stake, while we, under the most trying circumstances, are called on to defend it. It therefore behoves the veterinarian to arm himself at all points; and not only for his own individual reputation, but for the respectability of the profession altogether: for, what scene can be more derogatory—what more disgraceful—than one where two respectable members of the same profession are seen evidencing—ay, and swearing too!—in direct contradiction, the one to the other. What can this arise from, but a want of some mutual understanding or explanation? What can remedy it, but the cultivation of a branch of knowledge which has been, greatly to our discredit, almost totally neglected, viz., VETERINARY JURISPRUDENCE?

And what renders such a study the more imperative upon us, is, the notorious defectiveness on this point of the "law of the land," in which transactions of the kind are almost daily occurring.

"*Nullum iniquumin jure praesumendum est,*"

is a maxim for which I myself entertain all due respect; but perhaps no instance could be adduced where it appears less entitled to it than the one before us.

In order that I may subject myself to as little subsequent misapprehension as possible, I would beg permission to make an introductory remark or two on the term "sound." It is an epithet of extensive and various application, and conveys quite different meanings according to the sense in which it is used. The phrase "soundness," in equestrian language, in so far as it implies freedom from disease, appears to have been derived from the Latin word *sanus*, which has an etymological relation to *sanguis*, the blood: hence,

"*Sana mens in corpore sano*"

we may take to be a concise definition of what one would be led to look for in a man said to be sound or effective.

Applied to the horse, however, the epithet seems to imply something more than abstract freedom from disease: it impresses us with the idea that the animal is not only in health, but is exempt from certain defects and liabilities which may or do render him ineffective. When our dramatic bard exclaims,

"He hath a heart as *sound* as a bell,"

he seems not only to mean us to understand that "his heart" was free from corruption, but that it was capable of performing every good office for which Nature intended it: so, it would appear, run our notions about "a sound horse"; that the animal is not merely free from disease, but is equal to every useful performance for which he was created.

In advancing thus much at so early a period, let it not be understood that I am offering any definition of soundness: what I have just thrown out being merely intended to show that something more is popularly meant by the expression than abstract freedom from disease. At the same time, we must take care not to run into the error (to put it in the expressive language of Mr. Lawrence) "to estimate the standard of soundness by the standard of perfection." However, at this early stage of the inquiry, I feel myself by no means prepared, or even warranted were I prepared, to expound the scope and tenour of the phrase; all that I mean to contend for in this place is, that "a horse must be either *sound* or *unsound*"; the two states cannot in nature exist together; and therefore we have no right to cloak our ignorance or want of penetration by asserting the existence of an impossible state—an intermediate one.

(To be continued.)

"THE FIRST FULL-BLOOD VETERINARY SURGEON."

This was the appropriate form in which the news reached us of the birth of a son to Mr. and Mrs. E. L. Taylor (née E. Gertrude Knight), of Guildford, both of whom are members of the veterinary profession. We offer Mr. and Mrs. Taylor our hearty congratulations on their happy and unique contribution to veterinary history, and are glad to know that both mother and son are doing well.

NOTES AND NEWS.

Diary of Events.

Nov. 18th—Meeting of the Editorial Committee, N.V.M.A., 10 Gray's Inn Square, London, W.C.1. at 4-30 p.m.

Nov. 19th—Meeting of the North Midland Division, at King's Head Hotel, Change Alley, Sheffield, 4-30 p.m.

Nov. 20th—Meeting of the Western Counties Division, N.V.M.A., at Taunton.

Nov. 28th—Meeting of the Lancashire Division, N.V.M.A., at Pembroke Place, Liverpool, 2-30 p.m.

Nov. 28th—Annual Meeting of the North Wales Division, N.V.M.A., at Chester.

Nov. 29th—Meeting of the Royal Counties Division, N.V.M.A., at 10 Red Lion Square, W.C.1, 3 p.m.

Dec. 16th—Annual Dinner of the Central Division, N.V.M.A., at the Criterion Restaurant.

R.C.V.S. OBITUARY.

BENNETT, Frederick Pearson, Capt. R.A.V.C. (T.F.), late of Warminster and Paignton, South Devon. Graduated, London, 26th April, 1869. Died, 28th September, 1929, at the Horton General Hospital, Banbury, Oxon.

WESTON, Walter Pilley, F.R.C.V.S., Glenmore House, Minehead. Graduated, Edinburgh, 29th May, 1890; Fellowship, 13th December, 1902. Died, 4th November, 1929. Age 62 years.

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THE LATE PROFESSOR T. B. WOOD.

The sympathies of his fellow members of the profession will be extended to Colonel W. A. Wood, of Cambridge, in the death of his distinguished brother, Professor T. B. Wood, whose name will ever be associated with the Cambridge School of Agriculture. In this connection, the following tribute penned by a contributor to last Sunday's *Observer* is worthy of reproduction here: "It is difficult to think of the Department of Agriculture without Professor Wood. It is true that he was not the first to hold the Drapers' Professorship, but it is no disrespect to Professor Somerville and Sir Thomas Middleton (to each of whom the University owes a great deal) to say that it was T. B. Wood who did the donkey work in the early days and really brought the School into being. Opposition inside the University had to be overcome and the help of neighbouring County Councils enlisted; above all, the truly scientific basis of the new studies had to be guaranteed and maintained. In all this Professor Wood was wonderfully successful, and although many others have co-operated magnificently (especially the late Mr. K. J. J. Mackenzie), it is mainly owing to Wood that the reputation of the Cambridge School of Agriculture stands where it does to-day. Professor Wood, who was a Fellow of Gonville and Caius College, was also both a practical farmer and a writer of scientific books, while his contributions to the problems of war-time agriculture and food-supply were naturally invaluable."

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents

Report of the Departmental Committee on the Reconstruction of the Royal Veterinary College.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—The report of the Departmental Committee on the Reconstruction of the Royal Veterinary College

will assuredly receive the serious attention of every member of the profession. In the summary of conclusions the first statement is that the condition of the Royal Veterinary College is a national disgrace, a sentiment previously expressed by the Lovat Committee. In a sense we may be grateful that an authoritative statement to that effect has at last been made. It may lead to effective steps being taken.

The strictures of the Committee are not confined to the state of the College buildings and the inferiority of the equipment, which are patent. They refer also to the lack of proper educational facilities and to other defects in the training of the students. The report is not pleasant reading, but the time has arrived for public notice to be taken of the disagreeable facts. The Committee seem to have been satisfied with very little evidence from witnesses —which is strange, in view of the fact that the terms of reference included proposals for reconstruction and possible changes in the existing arrangements. As was to be expected the recommendations involve the expenditure of a large capital sum and greatly increased charges for maintenance. The financial issue demands urgent attention, and it is devoutly to be hoped that a solution will be found. It is obvious that the amount required will not be produced from public subscriptions. The increased accommodation and the strengthening of the staff, which are proposed, might be dealt with in detail, but I will content myself, and probably you, by remarking that, while the recommendations show a high sense of appreciation of what is necessary, they certainly represent the minimum requirements for a properly-equipped College. More accommodation will be essential when the course of training is extended.

At the moment, I should like, with your permission, to refer to two vital matters raised by Professor Buxton in his able and timely letter in your issue of November 9th. One is the question of University affiliation and the other refers to suitability of site.

Many members of the profession are sensible of the injurious effects of our educational isolation and have been pressing for some measure of reform for some time. I wish to support Professor Buxton in this connection. The Committee agree that the present system is wrong and recognise that the corporate life associated with University membership is indicated. Yet in their anxiety to retain the College in Camden Town, which they have to admit is an unsatisfactory locality for an educational institution, they have recommended, as Professor Buxton observes, half measures and have ignored the manifest advantages to be gained by association with a University offering full status and residential privileges. As reform is in the air let us reform thoroughly and, from the outset, endeavour to obtain full University status for our students whether they are studying for a degree or a diploma. The fact that the diploma is granted by the Royal College of Veterinary Surgeons and not by the University should not be an insurmountable difficulty. I fully realise that a Veterinary College must be situated in a large University City or Town, but I have a great preference for a University in which students can be in residence at a College or Hall of Residence of that University. Veterinary students should not be collected in one Hall but should be distributed.

The Royal Veterinary College must naturally remain in the southern part of England and can only be suitably located in London, at Oxford, Cambridge or Reading. I appreciate Professor Buxton's plea for Cambridge. From an academic point of view Cambridge is ideal, but Oxford and Reading are more populous and have consequent advantages to which I shall refer later. At Reading Agriculture and Dairying are prominent, but there is no Medical Faculty. It is suggested that there has been an opportunity of transfer to Cambridge but it is well known that both at Oxford and Cambridge the Colleges cannot possibly accept a large influx of extra students. Would veterinary students reading for degrees and diplomas be welcomed in the existing Co leges of either of these Universities? If the transfer of the Royal Veterinary College entailed separate Halls of Residence for veterinary students the advantages to be gained would be considerably decreased. London suffers from the lack of corporate life and is at a distinct disadvantage for that reason. If the London Degree is sought for it can be obtained by an external student.

In reference to the important question of hospital practice the Committee's support for Camden Town is not convincing. Professor Buxton, in his laudable desire to stress the advantages of Cambridge, envisages a first-class hospital at Camden Town. In this matter I think he is too optimistic. Though it is true enough that there is an old-established horse practice of a very limited kind and a plentiful number of " cases " in dogs and cats attending the clinic at Camden Town, the material does not suffice for adequate instruction. I feel sure that a large hospital practice with the necessary variety of patients could be built up at Oxford or Reading. Cambridge is at a serious disadvantage in this connection owing to its comparatively small population. In disagreement with the Departmental Committee, I believe that motor ambulance service has a great future before it. But who would transport a cow suffering from dystokia to Camden Town? The question of competition with practising veterinary surgeons applies to Camden Town as well as to other places. I think the difficulty is exaggerated and that it is a matter which could be settled with mutual satisfaction.

The Committee have found it hard to give a good reason for retaining the Research Institute at Camden Town apart from the fact that it is certainly advisable to associate it closely with the College. Camden Town is even less suitable for the Research Institute than for the Veterinary College. The construction may have been an expensive undertaking but the building is not unsuitable for other purposes and is quite saleable.

The architects appear to be satisfied that the Camden Town site is large enough but, from experience elsewhere, I cannot imagine that it is possible to provide adequate and dignified buildings on such a small area. Is it intended to build skyscrapers? In course of time extensions are inevitable and due allowance should be made accordingly.

I submit, Sir, that the Royal Veterinary College should be removed from Camden Town to Oxford, Cambridge or Reading for the following reasons:—

1. The advantages of collegiate and corporate life for the students cannot be enjoyed in London.
2. The environment at Camden Town is essentially unsuitable.
3. The clinical material available at Camden Town does not meet requirements, and in this respect the position is likely to get worse.
4. The site at Camden Town is cramped.
5. A cheaper site could be obtained out of London.—

Yours faithfully, G. K. WALKER (Colonel).

Abingdon.
9th November, 1929.

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TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—The Committee have done their work uncommonly well and the points raised should have the study and consideration of every member of the profession. At the moment I should just like to mention one fact in reference to carrying on at the present site in Camden Town. I have recently returned from a trip to Canada, and there became acquainted with the fact that out of three Colleges on the American continent which flourished in the old days in the midst of *populous cities*, two of them, *viz.*, Montreal and Chicago, had ceased to exist; whilst the third, *viz.*, the Toronto institution, had become amalgamated with and moved to, the Experimental Farm at Guelph.

I am, Sir, yours faithfully, HENRY TAYLOR.

Ormerod House,
Haywards Heath.
9th November, 1929.

Costs and Rewards of Qualification.

To the Editor of The Veterinary Record.

Sir,—I understand that the R.C.V.S. is considering a scheme to lengthen the course of study of those wishing to become veterinary surgeons.

Also, it is recommended that the R.V.C., London, be re-built and re-organised at a cost of over a quarter of a million.

These two ideas will surely increase the cost of qualification to the would-be veterinarian.

Is the qualification, when obtained, worth all this expense? The public do not seem to value it one straw. They can have their animals treated at the dispensary or travelling pharmacy round the corner at no cost to themselves. The dispensary staff, though it has not passed the magic portal, possesses the most impressive bedside manner. Yours truly, Bernard Gorton.

22 Arnewood Road,
Bournemouth,
Hants.
10*th November*, 1929.

The Appointment of Director of Research, Animal Diseases Research Association.

To the Editor of The Veterinary Record.

Sir,—The information that the proposed successor to Mr. W. A. Pool possibly may not be a member of the Veterinary Profession, must have come as a great shock to every member present at the meeting of the Scottish Branch of the National Veterinary Medical Association at Ayr on the 6th September. Surely some person or persons have blundered, but let us hope that our profession, with the support of the farming community, will be strong enough to prevent such folly from going further. We can always rely upon the members of the agricultural industry, for they know and understand that only men trained for special work can be successful in that sphere. They realise what the veterinary profession has done in the past and that their confidence would not be misplaced in the future. I believe that several agriculturists in this part have indicated that if such a step is taken their support will be withdrawn.

Veterinary research, though badly supported, has kept abreast with the sister profession, which has been comparatively well financed.

If any medical man is so exceptionally talented as to warrant his services being utilised to elucidate problems of animal disease of which his general knowledge must necessarily be very limited, surely it is a great sin to deprive of his abilities a profession in which so much remains to be done. In my humble opinion, the A.D.R.A. requires for its Director not a part-time man whose knowledge is confined to bacteriology from a medical point of view, but one who has a good general knowledge of all branches of Veterinary Science, as apparently his main duty is organisation and co-ordination.

Yours faithfully, Geo. A. Sangster.

County Buildings,
Dumfries.
5*th November*, 1929.

Canine Hysteria (so-called).

To the Editor of The Veterinary Record.

Sir,—I think the thanks of all thoughtful men are due to Mr. Henry Gray for calling attention to Gault's translation of Pavlov's work. Some time ago, I was instrumental, through Dr. Bullock, in getting the Library Committee to secure a copy of the work in German for the College Library. To those interested and who can read German, there is an excellent and concise section on *Psychische Functionen* at p. 195 of Malkmus-Oppermann's "Klinische Diagnostik der inneren Krankheiten der Haustiere." I am rather inclined to think that those who read this and peruse Pavlov's work will be led, after contemplation, to ask—"Do dogs ever have hysteria?"

I hope Mr. Henry Gray will forgive me, but he knows my views on 'the uses of the controversialist' and I am going to write that in my view the great majority of cases of so-called canine hysteria (and I have seen a great number) that I have treated, bear little or no resemblance to the human hysteria. I acknowledge that I have seen two or three canine cases that do simulate the human type of hysteria, but I do not class them with the numerous other ones.

Let us see if we can agree on the symptoms of human hysteria:—Is there not often a rough, hoarse, croupy cough and a sensation of choking and a convulsion of the trunk and limbs? There may be sudden unaccountable losses of muscular power and fixation of a limb, usually in some extraordinary position; there may be disturbances of sensation and areas of skin that are quite insensitive to touch or areas where there is hyper-sensitiveness, so that the slightest touch causes agony. Real nervous diseases must be differentiated from hysteria. I submit that in the case of the dog there are no choking, no fixation of a limb and no skin symptoms. Quite recently I had a case where the dog showed all the well-known symptoms—running and dashing about in the house, yelping and barking aimlessly and with the well-known look of fear in his eyes. For three or four days he was like this and only got sane and settled again after he had passed an irregular piece of coarse linen, about three inches long and half an inch wide that had been dragging through the stomach and intestines and banking up the nutriment in front of it for several days. This case was interesting and points to digestive irritation and a toxæmia. Personally, I think the cases are due to a combination of toxæmia and psychosis or either of these conditions alone and separate.

Yours truly, G. Mayall.

"Tortoiseshell Cat Mystery."

To the Editor of The Veterinary Record.

Sir,—I have refrained from writing about the above subject—in view of the reported perplexity of so many of my intellectual superiors—lest I displayed my ignorance; however, the letter in your issue of the 2nd inst. gives me the necessary impetus.

I know a farm where there is a large family of cats, the males of which are orange and all the females tortoiseshell, save the "Queen of the stud," who is black. I have reason to believe that there are many other veterinarians who are cognisant of similar cases, and, although I am so ignorant as to have been unaware of the theory of Mr. (or Miss) Doncaster, I have no doubt that the facts as I have reported have been well known among veterinarians for very many years past.

I am, yours etc., H. E. Bywater.

Town Hall,
West Ham, E.15.
8*th November*, 1929.

Lost Wire-haired Terrier.

To the Editor of The Veterinary Record.

Sir,—Should any of your readers have a wire-haired terrier patient answering the description of that advertised in your columns, I shall be much obliged if they will communicate with me at once. Contrary to instructions, my maid let him off the lead in Kensington Gardens, with the result that he got away and has not since been traced.

Faithfully yours, Reg. F. Wall.

128 Queen's Road,
Bayswater, W.2.

The Editor acknowledges the receipt of the following:—

Reports of meetings of the Lancashire and the Yorkshire Divisions, N.V.M.A., from Messrs. J. Spruell and S. Sharp, the respective Hon Secretaries.

Communications from Dr. F. G. Cawston (Durban), Messrs. J. T. Edwards (Harrogate), A. Gofton (Edinburgh), F. T. Harvey (St. Columb), H. D. Jones (London), H. Lorenfreu (Denmark), Sir John Moore (London), H. W. Steele-Bodger (Tamworth), and Mr. W. Jackson Young (Newcastle-upon-Tyne).